Stockpile Management

Program Mission

The Weapons Stockpile Management program supports the enduring stockpile as directed in the Nuclear Weapons Stockpile Plan; assures the availability of adequate supplies of tritium to meet the requirements of the enduring stockpile; provides safe and secure storage of nuclear materials and components to prevent proliferation of capabilities, technologies and systems; provides the ability to respond to potential or real weapon incidents/accidents, and also to respond to continuing and evolving nuclear terrorist threats; and provides a flexible infrastructure capable of supporting changing stockpile sizes.

Program Goal

- Provide high confidence in the safety, security, reliability and performance of the enduring U.S. stockpile, without nuclear testing, to ensure the effectiveness of the U.S. nuclear deterrent while simultaneously supporting U.S. arms control and nonproliferation objectives.
- Provide the ability to resume U.S. underground nuclear testing and reconstitute nuclear weapons production capacities, consistent with Presidential directives, the Nuclear Posture Review, and the START I treaty, should national security so demand in the future.

Program Objectives

There are four national security objectives from the U.S. Department of Energy Strategic Plan upon which this program and budget are based; three of these apply to Stockpile Management:

- Maintain confidence in the safety, reliability and performance of the nuclear weapon stockpile without nuclear testing.
- Ensure the vitality of DOE's national security enterprise.
- Reduce nuclear weapon stockpiles and the proliferation threat caused by the possible diversion of nuclear materials.

Strategies

Weapons Stockpile Management supports the following strategies from the national security section of the U.S. DOE Strategic Plan:

- Extend the life of U.S. nuclear weapons by continuing the Stockpile Life Extension Program and stockpile maintenance activities.
- Improve detection and prediction capabilities for assessing nuclear weapon component performance and the effects of aging.
- Continually evaluate the safety, reliability and performance of the nuclear weapon stockpile.
- Provide a reliable source of tritium for the nuclear weapons stockpile.
- Provide an appropriately sized, cost effective, safe, secure and environmentally sound national security enterprise.

- Ensure that sufficient scientific and technical personnel are available to meet DOE's long term national security requirements.
- Ensure and enhance protection of nuclear materials, sensitive information, and facilities.
- Maintain test readiness and maintain and enhance emergency response and management capabilities to address any nuclear weapons, radiological or other emergency in the U.S. or abroad.
- Dismantle nuclear warheads that have been removed from the U.S. nuclear weapons stockpile in a safe and secure manner.

Performance Measures

For FY 2000, the significant overall performance measures for the Stockpile Management program include:

- Meeting production schedules in the Program Control Documents (PCD) for gas generators, reservoirs, and recertified neutron generators such that no weapon is inoperable due to the lack of these replacement components.
- Meeting the annual weapons alteration and modification schedules contained in the Production and Planning Directive (P&PD) and further delineated in the Program Control Document (PCD).
- Maintain production schedule of replacement parts for the W87 Life Extension Program.
- Adhere to schedules for the safe and secure dismantlement of about 375 warheads that have been removed from the U.S. nuclear weapons stockpile.
- Adhering to schedules in the Enhanced Surveillance Program (ESP) Plan for activities that enhance knowledge of weapon-relevant physical processes affecting aging and operation of weapon components. Focus remains on conclusion of the ESP by the end of FY 2002.
- Certifying that standards for the safety, reliability, and performance of the nuclear weapons stockpile are met.
- Completing revalidation of the W76 using two teams of experts from the design labs.
- Assuring that all facilities required for successful achievement of the Stockpile Stewardship and Management Plan are operational.
- Meet the established schedules for downsizing and modernizing our production facilities.
- Adhere to schedules set forth in the Advanced Design and Production Technology Plan.
- Meet schedules to rebuild, qualify and certify Trident II pits by FY 2001 and develop intermediate pit production capability of 20 pits per year at the Los Alamos National Laboratory by 2007.
- Continue, in FY 2000, material protection, control, and accountability upgrades at three DOE facilities with weapons-usable material. Prepare to transition Building 3019 at the Oak Ridge National Laboratory to the Office of Environmental Restoration and Waste Management in FY 2001.
- No loss of U.S. origin nuclear materials in the U.S. and abroad from theft, loss, or illicit trafficking.

- Maintaining robust emergency response assets in accordance with Presidential Decision Directive 39, The Atomic Energy Act and Executive Order 12656 to ensure Departmental response to any nuclear weapons or radiological emergency in the United States or abroad.
- Continuing ongoing efforts of exercises, training and drills to improve response readiness to any possible weapons of mass destruction and terrorist threat contingency.
- Implementation of the December 22, 1998, tritium source decision**.**

Significant Accomplishments and Program Shifts

During FY 1998 and FY 1999, implementation of the Stockpile Management Program continued in accordance with the Stockpile Stewardship and Management Plan and resulted in the following accomplishments:

- Delivered limited life components consistent with Production and Planning Directive 98-0.
- Supported weapon refurbishment consistent with Production and Planning Directive 98-0.
- Successfully completed certification of the safety and reliability of the U.S. nuclear weapons stockpile according to DOE/DoD procedures.
- Delivered first W88 early development unit pit in February 1998.
- Delivered the first five of 21 new safeguards transporters in FY 1998.
- Continuing ongoing efforts of exercises, training and drills to improve response readiness to any possible weapons of mass destruction and terrorist threat contingency.
- Adhering to schedules for the safe and secure dismantlement of 1,062 nuclear warheads in FY 1998 and about 275 in FY 1999 that have been removed from the U.S. nuclear weapons stockpile.
- Beginning Title I design for Stockpile Management Restructuring Initiative projects at the Savannah River Site and the Y-12 Plant to downsize production capacities.
- Completing resumption of Phase A of the Y-12 special nuclear material operations .
- Completed consolidation transfer of all pits from SRS to Pantex.
- Plan to complete Y-12 receipt of HEU parts and Pantex receipt of pits from RFETS in FY 1999.
- Implemented additional high explosive tests into the surveillance program (high explosive divergence and detonator booster performance tests).
- Flew first enhanced fidelity instrumented flight test.
- Completed preparation for accelerated aging experiments for plutonium.
- Completed modeling of safety and reliability critical strong links and firesets.
- Implemented Secure Connectivity between the plants and the laboratories, including secure E-mail and File Transfer Protocol.
- Demonstrated collaborative exchange of assembly product models for concurrent evaluation of SLEP and alternative designs between the plants and the laboratories.

Budget Structure

The Weapons Stockpile Management decision unit budget request is organized in the following manner:

Core Stockpile Management: This program includes lifetime surety, maintenance, surveillance, evaluation, repair, and reliability of the enduring stockpile; weapons dismantlement and disposal; maintenance of weapons design and production capability to include archiving, life extension studies, and retrofits; development of safe weapon assembly and disassembly processes; development and operation of safe, secure systems for transporting nuclear weapons and components; and operation of a complex that meets environment, safety, and health requirements. This program also includes the consolidation of nonnuclear manufacturing efforts within the weapons complex, including the transfer and requalification of 25 technologies and processes at various receiver sites through nonnuclear reconfiguration.

Enhanced Surveillance: The Enhanced Surveillance Program has been implemented to address the uncertainty of the aging stockpile. The absence of new weapon system development and a downsized production complex makes it difficult to correct defects as rapidly as before. The ESP will develop tools, techniques, and models for measuring, qualifying, calculating, and predicting the effects of aging on weapons materials and components and understanding these effects as they affect weapons safety and reliability. Stockpile Management funding supports this effort at the plants and laboratories.

Advanced Manufacturing, Design and Production Technologies: The Advanced Manufacturing, Design & Production Technologies program will focus on re-engineering and modernizing the weapons complex into a modern, agile, and fully integrated operation capable of responding to a wide range of production requirements. This effort encompasses enterprise integration which is aimed at improving information flow and the way the complex accomplishes its day-to-day business; agile manufacturing which is concerned with the development of computer aided/automated direct manufacturing systems utilizing new secure connectivity; process development which focuses on continuous and innovative improvement of individual manufacturing procedures and incorporation of advanced systems into the complex; and the development and documentation of a hedge strategy to rapidly expand production capability in case of a national security requirement.

Radiological/Nuclear Accident Response: This program ensures the maintenance of the Department's technical and operational capabilities for responding to radiological accidents/incidents or malevolent nuclear incidents worldwide. Radiological/Nuclear Accident Response assets include the Nuclear Emergency Search Team, Federal Radiological Monitoring and Assessment Center, Aerial Measuring System, Atmospheric Release Advisory Capability, Accident Response Group, Radiological Assistance Program, and Radiation Emergency Assistance Center/Training Site.

Tritium Source: This program will implement the Secretarial Record of Decision, as announced in December 1998, which selected the Commercial Light Water Reactor option as the primary technology for the production of tritium with the linear accelerator to be developed as backup technology.

Materials: Responsibility for funding the majority of these activities has been transferred to the Office of Environmental Management. Residual activities include the processing of highly enriched uranium scrap from across the complex, the storing and safeguarding of excess uranium-233 at the Oak Ridge National Laboratory (ORNL), and the recovery of plutonium-242 and fabrication of californium sources at ORNL.

Funding Profile

(dollars in thousands)

	FY 1998 Current Appropriation	FY 1999 Original Appropriation	FY 1999 Adjustments	FY 1999 Current Appropriation	FY 2000 Request
Stockpile Management					
Core Stockpile Management					
Operations & Maintenance .	1,418,823	1,553,261	-30,507 [a]	1,522,754	1,457,321
Construction	83,370	97,658	0	97,658	94,679
Total, Core Stockpile Management	1,502,193	1,650,919	-30,507	1,620,412	1,552,000
Enhanced Surveillance					
Operations & Maintenance .	48,714	81,511	0	81,511	85,290
Advanced Manufacturing, Design and Production Technologies					
Operations & Maintenance .	90,098	79,520	0	79,520	85,000
Radiological Nuclear Accident Response					
Operations & Maintenance .	78,808	77,600	-1,400 [b]	76,200	77,600
Tritium Source					
Operations & Maintenance .	183,340	167,000	-26,000 [c]	141,000	106,000
Construction	77,515	0	26,000	26,000	64,000
Total, Tritium Source	260,855	167,000	0	167,000	170,000
Materials					
Operations & Maintenance .	60,419	27,911	0	27,911	28,410
Subtotal, Stockpile Management	2,041,087	2,084,461	-31,907	2,052,554	1,998,300
Prior Year Work Conducted in FY 1999	0	0	+28,558	28,558	0

[a] Reflects Stockpile Management allocation of appropriated use of prior year balances, taken as reductions to new budget authority: Core Management-$36,978,000; and reapplication of available prior year balances to cover FY 1999 program activities: Core Management $6,474,000.

[b] Reflects Stockpile Management allocation of appropriated use of prior year balances, taken as reductions to new budget authority: Radiological/Nuclear Accident Response $1,400,000.

[c] Reflects approval of Tritium Source reprogramming from operations and maintenance to construction, approved by Congress in January 1999.

	FY 1998 Current Appropriation	FY 1999 Original Appropriation	FY 1999 Adjustments	FY 1999 Current Appropriation	FY 2000 Request
Stockpile Management					
Subtotal, Stockpile Management	2,041,087	2,084,461	-3,349	2,081,112	1,998,300
Use of Prior Year Balances .	-1,870	-38,381	+3,349	-35,032	0
Total, Stockpile Management . .	2,039,217	2,046,080	0	2,046,080	1,998,300

Explanation of Funding Changes from FY 1999 to FY 2000

The FY 2000 request for Stockpile Management is approximately $54 million below the FY 1999 obligational level. Minor growth is reflected in the Enhanced Surveillance (ESP) and Advanced Manufacturing, Design Production Technologies (ADAPT) areas to continue moving the complex toward the technological state it must achieve for modern operations. Funding also increases by $3 million to support implementation of the Secretarial decision on the new Tritium Source announced on December 22, 1998. These minor increases are more than offset by Infrastructure reductions in core operations and maintenance and construction funding. No FY 2000 funding is being requested for Project 99-D-123, Replace Mechanical Utility Systems at the Y-12 Plant or for Project 99-D-125, Replace Boilers and Controls at the Kansas City Plant. These projects have been deferred to allow execution of Congressionally directed external assessment of these projects to be completed. Any recommendations related to the scope or schedule of these projects will be addressed in the FY 2001 budget submission. Additionally, no FY 2000 funding is being requested for project 97-D-122, Nuclear Materials Storage Facility Renovation at Los Alamos National Laboratory. Questions regarding approach, design and costs remain. Answers to these questions and accompanying decision process are out of sync with the FY 2000 budget cycle. It is anticipated that additional information will be provided to Congress once a path forward is developed. Additional details on these changes are provided within the section titled, "Detailed Program Justification."

The Stockpile Management budget was formulated based on the following priorities: maintain infrastructure essential for operations; support limited life component exchange; provide for stockpile surveillance/evaluation; support enhanced surveillance focused on efforts supporting Stockpile Life Extension Program decision points; support the W87 LEP and directed weapon modifications and alterations; reestablish pit production capability and capacity; support commitments to entities external to Defense Programs, such as the Defense Nuclear Facilities Safety Board (DNFSB); support the ADAPT program and remaining ESP tasks consistent with program plans; and support the dismantlement of retired weapons.

The request is consistent with these priorities, recognizing that the deployment of resources must be balanced to support activities with specific near-term deliverables while moving the complex toward the long-term technological state it must achieve for modern operations. Stockpile maintenance efforts will focus on limited life component exchange consistent with the START I stockpile, the W87 Life Extension Program (LEP), and alterations to the B61 and B83. Stockpile Evaluation funding is driven by lab testing and flight testing for the W76, W87 and W88. Dismantlement work will focus on continuation of the W56 and W79, and startup efforts of the B53 for projected dismantlement of approximately 375

weapons. Funding for the Transportation Program decreases by $3.8 million. While deliveries of new SafeGuards Transporters (SGT) for FY 1999 and FY 2000 are constant (six per year), funding requirements for the Transportation Program declines in FY 2000, reflecting the inclusion of long-lead procurement in the FY 1999 program. Defense Programs had originally planned to produce seventeen SGTs to replace older Safe Secure Trailers (SST). However, based on cost benefit analysis of maintaining the older SST fleet or procuring additional SGTs, DP has decided to exercise its option to replace 4 additional SSTs with SGTs. These four additional units are scheduled for delivery in FY 2001 and will bring the fleet of SGTs up to 21 units.

Recapture of pit production efforts technologies for the W88, B61-7 and W87 will continue at LANL. Fabrication of W88 pits for certification and qualification will continue toward the goal of providing war-reserve pits for the stockpile in 2001. Safety infrastructure replacements and pit manufacturing improvements will be supported through the Transition Manufacturing and Safety Equipment initiative. Stockpile Management Restructuring Initiative (SMRI) efforts will continue at the four production plants with the goal of having a smaller and more cost effective complex in place by FY 2005. ESP efforts will continue the development of predictive capabilities and diagnostic tools to provide critical aging data needed to support the Stockpile Life Extension Program (SLEP) decision process. ADAPT will continue to develop and deploy advanced product design and manufacturing technologies needed for a modern, effective and efficient design and production operation. Examples include the development and deployment of an integrated set of product and process simulation tools for neutron generator product realization and the development and deployment of advanced processing technologies needed to reestablish pit production capability to meet SLEP requirements.

Stockpile Management Restructuring Initiative

The Stockpile Management Restructuring Initiative (SMRI) supports the implementation of Departmental decisions related to production facility downsizing and modernization consistent with the Stockpile Stewardship and Management Programmatic Environmental Impact Statement (PEIS) and the Tritium Supply and Recycling Programmatic Environmental Impact Statement Records of Decision (ROD). The ROD for restructuring the stockpile management complex was announced on December 19, 1996 and the ROD for the Tritium Supply and Recycling PEIS was announced on December 5, 1995. They involve the downsizing in place of weapons assembly/disassembly and high explosives at the Pantex Plant, nonnuclear component fabrication at the Kansas City Plant, weapons secondary and case fabrication at the Y-12 Plant, and the consolidation of existing tritium operations at the Savannah River Site. In FY 1998, the Department began Title I design for the SMRI projects at the Savannah River Site and the Y-12 Plant. In FY 1999, the Department will focus on completing Title I and starting Title II design for the SMRI projects at Savannah River and Y-12 and beginning the Title I Design for the SMRI projects at the Kansas City and Pantex Plants. FY 2000 activities include completing and continuing Title I and II design activities and continuing or beginning contract activities at the SMRI project sites. The FY 2000 request includes $72 million in operations and maintenance and construction funding to support these efforts. Funding associated with the SMRI will continue through FY 2004 and physical construction through FY 2005.

Pit Production and Plutonium Handling Infrastructure Improvements

At the Los Alamos National Laboratory, Defense Programs is re-instituting a war reserve pit production capability that has not existed since production activities ceased at the Rocky Flats Plant. In accordance with the Record of Decision on the Programmatic Environmental Impact Statement, the current objective

is to establish a long-term capacity for manufacturing up to 50 pits/year with a single shift of personnel. In the nearer term, we will achieve an annual capacity of 20 pits by 2007. A decision will be made on the specific manufacturing capacity to be put in place and how best to achieve that capacity through discussions with the Department of Defense.

The Pit Production Program consists of several parts: 1) a project to assure initially the capability to build war reserve pits has been captured; 2) a development and manufacturing period focused on meeting near term stockpile support requirements; 3) emplacement of a set manufacturing capacity for long term support of the stockpile; and 4) development of a contingency plan to allow the Department to move to higher rates of manufacturing should unforeseen requirements emerge in the future.

In FY 1998, sufficient work through the Pit Rebuild Program was completed to verify that the Los Alamos National Laboratory has the capability to build W88 war reserve pits. Work in FY 1999 and FY 2000 will build on the FY 1998 program: approximately 30 pits will be fabricated for certification and qualification with the goal of having a war reserve W88 pit available for the stockpile in 2001. Fabrication of W88 pit for the stockpile will be continuous to assure "lot" integrity for certification purposes, with small down time periods for facility maintenance and replacement of aged manufacturing equipment as required. The Capability Maintenance Improvement Project, now planned as a FY 2002 new start, will be the construction project for facility improvements/upgrades beyond maintenance and replacement in-kind of equipment necessary to support the near-term manufacturing requirements. In addition, Technology Development Units of the B61-7 and W87 will be built.

Development of a contingency plan for larger quantity manufacturing is planned once sufficient information from the Pit Rebuild Program and subsequent manufacturing of war reserve pits clarifies the processes and specific equipment for manufacturing.

Plutonium handling infrastructure improvements are supported under the Transition Manufacturing and Safety Equipment initiative and the following construction projects: 99-D-132 Nuclear Materials Safeguards and Security Upgrades, 97-D-122 Nuclear Materials Storage Facility Renovation, and 95-D-102 Chemistry and Metallurgy Research Building Upgrade Project.

Production Capacity for START I

Consistent with the Administration's "Lead and Hedge" strategy, the FY 2000 request includes $20.3 million to continue efforts initiated in FY 1999 to support capacity expansion for production of limited life components at the Kansas City Plant, Sandia National Laboratories, and Los Alamos National Laboratory, in order to support START I requirements or to return to START I levels in a timely manner once START II is ratified (hedge strategy). This $20.3 million includes $11.7 million in construction funding (Project 99-D-122, Rapid Reactivation, Various Locations) for facility modifications at SNL and additional equipment required to support the additional capacity requirements at SNL and LANL. Specifically, it will support the design, construction, and installation of a third target loader within existing space of the Neutron Tube Target Loading Facility at LANL; rearranging existing space in, and adding additional space to, the current Reservoir Assembly Facility; and rearranging existing space within Building 870, adding additional space in an adjacent building, and the procurement of additional production equipment at SNL. It also includes $8.6 million in operations and maintenance funding which provides project support and management for construction activities, NEPA Documentation, component prebuilds, installation of equipment, qualification and process prove-in, and additional manpower to support the increased production levels. This additional capacity is scheduled to be on line and qualified

for war reserve production by FY 2003. To support START I requirements through FY 2003, neutron generators returned from the field will be recertified and reapplied for their remaining life and 544 neutron generators will be shipped from inventory at Pinellas.

Weapons Production Complex Infrastructure

The nuclear weapons complex is expected to experience ongoing consolidation over the next five to ten years. The goal of the consolidation effort is to configure into a complex that is smaller, more flexible, and much less expensive to operate. By the year 2001, nonnuclear manufacturing and processing capabilities will be consolidated at the Kansas City Plant, the Savannah River Site, the Los Alamos National Laboratory (LANL), and Sandia National Laboratories (SNL).

Several important Environmental Impact Statements (EIS) have recently been completed or are underway within the Department that will assist in defining alternatives that will lead to a consolidated nuclear weapons complex in the twenty-first century: 1) a Stockpile Stewardship and Management PEIS which was completed in early FY 1997 2) a Pantex Site-wide Environmental Impact Statement (SWEIS) which was completed in early FY 1997; 3) a LANL SWEIS which is scheduled for completion by the end of the 2nd quarter of FY 1999; 4) a SNL/NM SWEIS which is scheduled for completion by the end of FY 2000; and 5) a Notice of Intent to prepare a Y-12 SWEIS is expected to be published in February 1999 with a goal of completion by 3rd quarter of FY 2000.

The Oak Ridge Operations Office and the Y-12 Plant have initiated the Y-12 Site Integrated Modernization (Y-SIM) Program. This effort will plan and implement the strategic modernization of key process facilities at the Y-12 Plant through the next decade. The program will be executed in phases involving a series of capital projects. In FY 2000, activities will include: requirements development & verification, facility assessment, operating plan development, technology assessment & planning, alternatives development, site selection & characterization, utility & infrastructure plans, safety authorization basis, plant concepts/cost/schedule, and baseline selection. In concert with this effort, a SWEIS is being initiated. In FY 2000, the estimated funding required for the modernization planning effort is $10 million and the funding required for the SWEIS is $15 million.

On June 4, 1998, the Department issued a public notice that it was actively considering a concept for consolidating up to six existing contracts for nuclear weapons production activities into a single contract. Departmental analysis indicated that a consolidated contract approach would provide clearer lines of authority and responsibility, improve information sharing, cooperation and technical integration, and provide cost savings through single business and technical support efficiencies and eliminate duplicative functions among multiple contractors. This notice requested that written comments be submitted by July 15, 1998, and invited interested parties to request one-on-one meetings with Department officials. The Department received oral or written comments from 37 individuals, 17 companies, 2 community interest groups and 1 union.

Following analysis of stakeholder comments, the Department has modified its contract consolidation proposal to include three sites: the Pantex Plant in Amarillo, Texas; the Kansas City Plant in Kansas City, Missouri; and the Y-12 Plant in Oak Ridge, Tennessee. On December 21, 1998, the Secretary announced that he had ordered a review of the management structure throughout the Department before making a final decision on the consolidation proposal. This review will be conducted by an internal task force and will look at broad management issues, including the responsibilities and reporting relationships between field offices and headquarters; the governance structure for headquarters, field operations, contractors

and facilities; career development opportunities for employees, and management and accountability on large construction and cleanup projects. The contracts for the Y-12 and Kansas City Plants will be extended 15 months, expiring in June 2001. The Department will exercise options on the Pantex contract so that it will also expire in June 2001. These extensions will provide the time needed to conduct a competitive procurement process and transition to a new contract.

Tritium

On December 5, 1995, DOE issued a Tritium Supply and Recycling Record of Decision (ROD), that selected the two most promising alternative technologies for tritium production and established a dual-track strategy that would, within 3 years, select one of those technologies to become the primary tritium supply technology. The other technology, if feasible would be developed as a backup tritium source. Under the dual-track strategy, DOE would: 1) initiate the purchase of an existing commercial reactor (operating or partially complete) or irradiation build, and test critical components of an accelerator system for tritium production. Any new facilities that might be required, the production-scale accelerator and a Tritium Extraction Facility to support the commercial reactor alternative, would be constructed at DOE's Savannah River Site in South Carolina. The ROD also stated that DOE's Fast Flux Test Facility at the Hanford Reservation in Washington would be examined for a possible tritium production role although it had been previously rejected as a reasonable alternative.

On December 22, 1998, the Secretary of Energy announced his decision to select the use of commercial light water reactors for tritium production. The preferred reactors are the Watts Bar reactor and Sequoyah reactors located in Tennessee. Each of these reactors is operated by the Tennessee Valley Authority, an independent government agency. The linear accelerator option was designated a "backup" technology. The Fast Flux Test Facility will have no tritium production role. This ROD revises the December 1995 Tritium Supply and Recycling Record of Decision and completes the process of selecting a single technology for tritium production.

Funding by Site

(dollars in thousands)

	FY 1998	FY 1999	FY 2000	$ Change	% Change
Albuquerque Operations Office					
Albuquerque Operations Office . . .	150,926	123,567	85,756	-37,811	-30.6%
Kansas City Plant	293,632	294,222	287,567	-6,655	-2.3%
Los Alamos National Laboratory . .	315,304	354,108	313,195	-40,913	-11.6%
Pantex Plant	259,762	260,221	240,878	-19,343	-7.4%
Sandia National Laboratories	229,008	249,060	252,462	3,402	1.4%
Total, Albuquerque Operations Office . .	1,248,632	1,281,178	1,179,858	-101,320	-7.9%
Chicago Operations Office					
Brookhaven National Laboratory . .	2,803	1,028	335	-693	-67.4%
Chicago Operations Office	2,092	11,614	9,599	-2,015	-17.4%
Total, Chicago Operations Office	4,895	12,642	9,934	-2,708	-21.4%

(dollars in thousands)

	FY 1998	FY 1999	FY 2000	$ Change	% Change
Idaho Operations Office	17,261	5,446	384	-5,062	-92.9%
Nevada Operations Office	23,678	23,932	23,901	-31	-0.1%
Oak Ridge Operations Office					
Oak Ridge Operations Office	7,215	8,179	3,000	-5,179	-63.3%
Oak Ridge Y-12	437,631	413,591	374,221	-39,370	-9.5%
Oak Ridge Institute for Science and Education	14,126	12,487	12,687	200	1.6%
Oak Ridge National Laboratory	16,213	16,666	16,790	124	0.7%
Total, Oak Ridge Operations Office	475,185	450,923	406,698	-44,225	-9.8%
Oakland Operations					
Lawrence Livermore National Lab	52,446	58,021	49,083	-8,938	-15.4%
Oakland Operations Office	527	283	316	33	11.7%
Total, Oakland Operations Office	52,973	58,304	49,399	-8,905	-15.3%
Richland Operations Office					
Pacific Northwest National Lab	45,748	23,486	14,610	-8,876	0.0%
Richland Operations Office	1,094	287	358	71	24.7%
Total, Richland Operations Office	46,842	23,773	14,968	-8,805	-37.0%
Savannah River Operations Office					
Savannah River Operations Office	5,145	5,247	5,854	607	11.6%
Savannah River Westinghouse	149,735	150,190	127,686	-22,504	-15.0%
Total, Savannah River Operations Office	154,880	155,437	133,540	-21,897	-14.1%
Headquarters/Other	16,741	40,919	179,618	138,699	339.0%
Subtotal, Stockpile Management	2,041,087	2,052,554	1,998,300	-54,254	-2.6%
Prior Year Work Conducted in FY 1999		28,558	0	-28,558	-100.0%
Subtotal, Stockpile Management	2,041,087	2,081,112	1,998,300	-82,812	-4.0%
Use of Prior Year Balances	-1,870	-35,032	0	35,032	-100.0%
Total, Stockpile Management	2,039,217	2,046,080	1,998,300	-47,780	-2.3%

Site Description

Weapons Stockpile Management activities are conducted at four production facilities and three national laboratories. The production facilities include the Kansas City Plant-Kansas City, Missouri, operated by

Allied Signal Aerospace; the Pantex Plant-Amarillo, Texas, operated by Mason & Hanger; the Y-12 Plant-Oak Ridge, Tennessee, operated by Lockheed Martin Energy Systems; and the Savannah River Site-Aiken, South Carolina, operated by Westinghouse Savannah River Company. The national laboratories include Sandia National Laboratories-Albuquerque, New Mexico, and Livermore, California, operated by Lockheed Martin; Los Alamos National Laboratory-Los Alamos, New Mexico; and Lawrence Livermore National Laboratory-Livermore, California, operated by the University of California. Other miscellaneous locations are funded through the Weapons Stockpile Management Program as noted.

Kansas City Plant

The Kansas City Plant is located on 141 acres of the Bannister Federal Complex within the city limits of Kansas City, Missouri, about 12 miles south of downtown. The Kansas City Plant is the main facility in the nuclear weapons complex for the manufacture and procurement of nonnuclear components for nuclear weapons, including electrical, electronic, electromechanical, mechanical, plastic, and nonfissionable metal. The broad range of components and devices procured from U.S. industry is supported by an extensive system to qualify suppliers and accept products.

The Kansas City Plant provides a broad range of standard industrial processes (e.g. plating, machining, metal deposition, molding, painting, heat treating, and welding), some of which are uniquely tailored to meet special weapon reliability requirements. Delivery of nonnuclear components for the B-61 Mod 11 was completed in 1997. The Kansas City Plant evaluates components and subsystems removed from the stockpile for reuse or testing. The plant is participating with the other plants and laboratories in the Enhanced Surveillance Program to predict component and material lifetimes, critical elements of the Stockpile Life Extension Program, and in Advanced Manufacturing, Design and Production Technologies (ADAPT) program to develop modular, scalable, and environmentally sound manufacturing processes.

Los Alamos National Laboratory

LANL is located on about 28,000 acres adjacent to the town of Los Alamos, New Mexico, which is approximately 25 miles northwest of Santa Fe. Specific LANL stockpile management activities include plutonium fabrication and processing technology development with support from the Lawrence Livermore National Laboratory (LLNL); oversight of tritium reservoir surveillance, testing, and tritium recycle technology; support of high explosive safety and assembly/disassembly operations at the Pantex Plant; detonator development and surveillance; beryllium fabrication; neutron tube target loading, and pit support component production and surveillance.

A plutonium pit manufacturing mission is being reestablished at LANL to replace units destructively tested in the surveillance program and to replace pits in the future should surveillance indicate a problem with a pit. DOE is instituting a phased approach to assure the capability to manufacture is retained and then to establish a capacity to manufacture a number of pits per year.

LANL also participates in the Enhanced Surveillance Program and the Dual Revalidation program.

LANL has a major role in DOE's backup technology for a new tritium production source. LANL directs the APT National Project Office which is responsible for the engineering, development and demonstration activities to verify technical issues and the preliminary design of the APT.

LANL's role in research and development is discussed further in the Stockpile Stewardship decision unit.

Pantex Plant

The Pantex Plant is located on approximately 10,177 acres about 17 miles northeast of Amarillo, Texas. Pantex is the only facility in the complex for quantity assembly/disassembly of nuclear weapons.

Plutonium pits from dismantled weapons are stored at Pantex. The site has been designated as the permanent location for strategic reserve pit storage and the interim storage location for surplus pits resulting from dismantlement activities and the planned closure of the Rocky Flats Site.

Pantex also fabricates high explosives used in nuclear weapons and performs modifications and surveillance of nuclear weapons scheduled to remain in the future stockpile.

Pantex is participating with the other plants and the laboratories in the Enhanced Surveillance Program and in Advanced Manufacturing, Design and Production Technologies (ADAPT). A five-year agreement with the State of Texas commits DOE to fund the Amarillo National Resource Center for Plutonium. FY 1999 is the last year funding is provided under the current agreement. DOE has received inquiries from the State requesting the extension of the agreement for another 5-year period.

Beginning in 1999, the assembly/disassembly and the high explosives fabrication facilities will be appropriately downsized to support the future stockpile. By approximately 2005, these facilities will be about two-thirds their current size. This downsizing will involve modifications and consolidations within the existing footprint.

Sandia National Laboratories

SNL is located on the 75,520-acre Kirtland Air Force Base military reservation about 6.5 miles east of downtown Albuquerque, New Mexico. It occupies about 18,000 acres on the Kirtland reservation and has additional facilities in Livermore, California, and in Tonopah, Nevada.

SNL is responsible for the nonnuclear components and systems engineering for all nuclear weapons and is a crucial point of contact with DoD in the areas of weapon requirements, system design, logistics, surveillance, training, and dismantlement. SNL manufactures certain nonnuclear components including neutron generators and is capable of providing an assured source of radiation hardened electronics.

SNL participates in the ADAPT program, the Enhanced Surveillance Program, and the Dual Revalidation program.

SNL's role in research and development is discussed further in the Stockpile Stewardship decision unit.

Nevada Operations Office

NTS encompasses approximately 867,000 acres in Nye county in southern Nevada, about 65 miles northwest of Las Vegas.

DOE's Nuclear Emergency Search Team, based at NTS, can respond to any type of emergency involving radioactive materials in the U.S. or abroad.

The Nevada Test Site role in Test Readiness and Experimentation is discussed in the Stockpile Stewardship decision unit.

Y-12 Plant

The Y-12 Plant is located on about 800 acres of the almost 35,000-acre Oak Ridge Reservation located about 20 miles west of Knoxville, Tennessee. Y-12 maintains the only capability in the nuclear weapons complex to fabricate quantity uranium and lithium components and parts for nuclear weapons, including secondaries and radiation cases. All current nuclear weapons have components produced at Y-12.

Y-12 has historically stored highly enriched uranium (HEU) and lithium for the nuclear weapons complex and Y-12 is now designated the permanent location for the storage of strategic reserves of these materials. Y-12 also evaluates components and subsystems returned from the stockpile, dismantles nuclear weapons secondaries returned from the stockpile and processes recovered special nuclear materials for storage.

Y-12 is participating with the other plants and the laboratories in the Enhanced Surveillance Program to predict component and material lifetimes, a critical element of the Stockpile Life Extension Program, and in the Advanced Manufacturing, Design and Production Technologies (ADAPT) program.

Lawrence Livermore National Laboratory

LLNL is located on about 821 acres in Livermore, California. A 7,000-acre auxiliary testing range is located about 18 miles east of the Livermore site. Along with participation in the Enhanced Surveillance Program, the Advanced Manufacturing, Design and Production Technologies (ADAPT) program, and the Dual Revalidation program, specific LLNL stockpile management activities include the support of high explosive safety and assembly/disassembly operations at the Pantex Plant, and oversight of uranium and case fabrication and processing technology with support from the Y-12 Plant and LANL.

LLNL's role in research and development is discussed further in the Stockpile Stewardship decision unit.

Savannah River Site

The Savannah River Site occupies approximately 198,000 acres about 12 miles south of Aiken, South Carolina on the state line with Georgia. Augusta, Georgia is about 16 miles northwest of the site. The primary DP mission at the Savannah River Site (SRS) is the recycling of tritium from the weapons stockpile and the loading and surveillance of tritium reservoirs.

SRS tritium facilities will be upgraded and consolidated to support the use of an existing commercial light water reactor (CLWR). A new tritium extraction facility will be constructed at SRS.

All Other Sites

Stockpile Management activities in support of the Tritium Source initiative are also conducted at the Pacific Northwest Laboratory and Chicago Operations Office. Safe and secure storage of excess U-233 under the Materials program takes place at the Oak Ridge National Laboratory. Radiological/Nuclear Accident Response activities are also conducted at the Oak Ridge Institute for Science and Education.

Core Stockpile Management

Mission Supporting Goals and Objectives

The Core Stockpile Management operations and maintenance program includes procurement of materials (exclusive of nuclear materials); fabrication and assembly of nuclear weapons and weapon components; lifetime surety, maintenance and reliability assessments of the enduring stockpile; weapon dismantlement and disposal; maintenance of a production capability; development and operation of safe, secure systems for transporting nuclear weapons and weapon components; preparation, issuance, and maintenance of field training manuals; and facility startup and standby operations.

Ongoing Activities

- Support the warhead dismantlement/disposal and storage program;
- Support modifications, repairs and retrofit programs;
- Support the limited life component exchange program;
- Provide quality evaluations, special testing, and surveillance of nuclear weapon systems;
- Acquire a pit rebuild capability and limited capacity to meet near-term stockpile requirements;
- Maintain and improve upon essential technologies and capabilities; and
- Maintain the weapons complex infrastructure at a level necessary to accomplish mission requirements.

Budget Contents

Core Stockpile Management operations and maintenance funding is broken into 14 major categories: **Stockpile Maintenance, Stockpile Evaluation, Dismantlement, Materials Recycle and Recovery, Storage, Transportation, Pit Production, Containers, Field Engineering, Training and Manuals, Complex Downsizing, Project Support/Facility Startup/Standby/D&D of Facilities, Special Projects and Other, Capital Equipment, and General Plant Projects**.

Stockpile Maintenance includes limited life component exchange, maintenance, and retrofit activities on various weapon systems in the enduring stockpile to maintain War Reserve weapons and components.

Stockpile Evaluation includes new material laboratory tests, new material flight tests, stockpile laboratory tests, stockpile flight tests, quality evaluations, special testing, and surveillance of weapon systems to ensure quality evaluation and assessment of the reliability of War Reserve weapons and components.

Dismantlement includes all activities for weapons associated with retirement, disassembly, component characterization, and disposal and reclamation of materials and components; the engineering, development, testing, certification, procurement, and refurbishment of containers required for interim storage; and the staging and storage of weapons, components, and materials awaiting dismantlement. In FY 1998, the Department has carried out a robust dismantlement program and disassembled 1,062 weapons, primarily consisting of the W69. The majority of W69 units were completed in FY 1998 with the residual units scheduled for completion in FY 1999.

Materials Recycle and Recovery includes the recycle and recovery of plutonium, enriched uranium, and tritium from fabrication and assembly operations, limited life components, and dismantlement of weapons and components. Involves the process in recycling and purifying the above materials to meet specifications for safe, secure, and environmentally acceptable storage, including meeting the directive schedule for tritium reservoir refills.

Storage provides for the cost of storage of weapons material or components to be stored for the foreseeable future. Does not include the cost of temporary storage of materials awaiting processing, staging for dismantlement, or any other interim storage.

Transportation provides for the safe, secure movement of nuclear weapons, strategic quantities of Special Nuclear Material, selected nonnuclear weapon components, and limited life components to and from military locations and between nuclear complex facilities within the continental United States. Supports the level of weapon deliveries and stockpile modifications specified in the Production and Planning Directive. Provides operational fleet vehicles and communications systems through repair and refurbishment, and modifications to enhance safety and security. This program element does not include the cost for the couriers and other administrative personnel (federal employees) who execute this program. These costs include federal employee salaries and benefits, travel, and training, and are funded in the Weapons Activities Program Direction decision unit.

Pit Production includes operating support and the procurement of equipment for the reestablishment of a war reserve pit production capability at LANL and the initiation of the manufacturing of quantity pits for certification and ultimate placement into the nuclear weapons stockpile.

Containers includes research and development, design, recertification and maintenance, off-site transportation certification of component containers in accordance with federal regulations, off-site transportation authorization of non-certifiable nuclear materials transportation configuration; test and evaluation, production/procurement, fielding and maintenance, and decontamination and disposal to provide adequate quantities of containers to support the nuclear weapons mission (transportation and storage).

Field Engineering, Training and Manuals includes costs incurred for technical training of military and contractor personnel participating in the Joint Task Group evaluations of new weapons prior to complete engineering release.

Complex Downsizing includes operating support of the construction projects to consolidate and downsize the weapons production complex. Activities include conceptual design, NEPA documentation, Preliminary Safety Analysis Reports, facilities acceptance, pre-operational readiness, component prebuilds, qualification and process prove-in, workforce restructuring, and facility shutdown.

Project Support/Facility Startup/Standby and Decontamination and Disposition of Facilities includes operating support of construction projects including conceptual design, NEPA documentation, Preliminary Safety Analysis Reports, facilities acceptance, pre-operational readiness, plant support costs during construction, activation and startup. Includes the cost of Enriched Uranium Operations at the Y-12 Plant. Also includes the cost of maintaining standby facilities for future use and the costs for decontamination and disposition of production equipment, facilities and, land.

Special Projects and Other includes programmatic activities coordinated and contracted through the Albuquerque, Oak Ridge, and Savannah River Operations Offices and Headquarters. These special

projects, often one-time efforts or complex-wide efforts, do not fit easily into other budget categories and require special control or visibility. Funding is also includes funding responsive to the Department's Implementation Plan for the Defense Nuclear Facilities Safety Board recommendation 97-2 related to Nuclear Criticality.

Core Stockpile Management Construction

A detailed listing of individual construction line items follow. Further project justification can be found in the Construction Project Data Sheets which are included with this budget submission. No FY 2000 funding is being requested for Project 99-D-123, Replace Mechanical Utility Systems at the Y-12 Plant or for Project 99-D-125, Replace Boilers and Controls at the Kansas City Plant. These projects have been deferred to allow execution of Congressionally directed external assessment of these projects to be completed. Any recommendations related to the scope or schedule of these projects will be addressed in the FY 2001 budget submission. Additionally, no FY 2000 funding is being requested for project 97-D-122, Nuclear Materials Storage Facility Renovation at the Los Alamos National Laboratory. Questions regarding approach, design and costs remain. Answers to these questions and accompanying decision process are out of sync with the FY 2000 budget cycle. It is anticipated that additional information will be provided to Congress once a path forward is developed. Additional details on these changes are provided within the section titled, "Detailed Program Justification."

Funding Schedule

(dollars in thousands)

	FY 1998	FY 1999	FY 2000	$ Change	% Change
Operations and Maintenance					
Stockpile Maintenance	457,146	551,162	552,692	1,530	0.3%
Stockpile Evaluation	250,554	243,074	271,218	28,144	11.6%
Dismantlement	92,109	64,179	41,232	-22,947	-35.8%
Material Recycle and Recovery	112,519	132,305	144,690	12,385	9.4%
Storage	88,454	98,517	101,086	2,569	2.6%
Transportation	64,465	63,800	60,000	-3,800	-6.0%
Pit Production	82,888	103,755	116,492	12,737	12.3%
Containers	21,880	27,414	25,756	-1,658	-6.0%
Field Engineering, Training & Manuals	6,364	5,700	5,900	200	3.5%
Complex Downsizing	34,347	21,850	26,788	4,938	22.6%
Project Support/Facility Startup/Standby/D&D	83,467	68,002	29,969	-38,033	-55.9%
Special Projects and Other	77,567	99,052	77,606	-21,446	-21.7%
Subtotal, Operating Expenses	1,371,760	1,478,810	1,453,429	-25,381	-1.7%
Capital Equipment	33,505	20,102	1,250	-18,852	-93.8%
General Plant Projects	13,558	23,842	2,642	-21,200	-88.9%
Subtotal, Operations and Maintenance	1,418,823	1,522,754	1,457,321	-65,433	-4.3%
Construction	83,370	97,658	94,679	-2,979	-3.1%
TOTAL, Core Stockpile Management	1,502,193	1,620,412	1,552,000	-68,412	-4.2%

Detailed Program Justification

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
Stockpile Maintenance			
# Support Production and Planning Directive schedule for limited life component exchange consistent with START I and/or the ability to reactivate to START I	151,622	167,121	168,135

	(dollars in thousands)		
	FY 1998	FY 1999	FY 2000
# Support weapons modifications, alterations and repairs in accordance with Production and Planning Directive schedule for the W87 Life Extension Program, B61 Alts 335 and 339, and the B83-1 Quality Improvement Program	305,524	384,041	384,557
Total, Stockpile Maintenance	457,146	551,162	552,692
Stockpile Evaluation			
# Conduct new material laboratory tests/stockpile laboratory tests	69,499	65,214	73,782
# Conduct new material flight tests/stockpile flight tests	112,705	100,497	117,346
# Conduct surveillance testings	68,350	77,363	80,090
Total, Stockpile Evaluation	250,554	243,074	271,218
Dismantlement			
# Disassembly of retired weapons	66,641	50,450	36,254
# Characterization and disposition of components from dismantlement	14,772	1,198	1,334
# Staging and storage of weapons, components or nuclear materials awaiting dismantlement.	10,696	12,531	3,644
Total, Dismantlement	92,109	64,179	41,232
Materials Recycle and Recovery			
# Development and implementation of new processes or improvements to existing processes for fabrication and recovery operations for plutonium and uranium, and for material stabilization, conversion, and storage; and recycle and recovery of material from fabrication and assembly operations, limited life components, and dismantlement/disposal of weapons and components	86,170	97,901	108,970
# Support for DNFSB recommendation 94-1 at LANL related to stabilization of uranium and plutonium residues	26,349	34,404	35,720
Total, Materials Recycle and Recovery	112,519	132,305	144,690

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
Storage			
# Storage of weapons material or components to be stored for the foreseeable future	88,454	98,517	101,086
Transportation			
# Provide safe, secure movement of nuclear weapons, strategic quantities of Special Nuclear Material, selected nonnuclear weapon components, and limited life components to and from military locations and between nuclear complex facilities within the continental United States	16,175	16,965	17,160
# Support activities necessary to improve or purchase new facilities or equipment; effect economies of operations; reduce or eliminate health, fire and security problems; and maintain, refurbish, and/or modify fleet equipment operations	36,955	34,835	29,880
# Support activities to continually track and privately communicate with convoys	11,335	12,000	12,960
Total, Transportation	64,465	63,800	60,000
Pit Production			
# Recapture the capability to build war reserve pits and achieve an annual production capacity of 20 pits per year by 2007	79,088	86,555	90,867
# Replace in-kind equipment to address facility/system safety and reliability issues through the Transition Manufacturing and Safety Equipment Initiative	0	15,000	25,000
# Preparatory efforts to support longer-term capacity requirements	3,800	2,200	625
Total, Pit Production	82,888	103,755	116,492

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
Containers			
# Research and development of transportation and storage containers	6,988	7,167	4,070
# Recertification and maintenance of transportation and storage containers	7,479	4,774	5,803
# Production/procurement of transportation and storage containers	7,413	15,473	15,883
Total, Containers	21,880	27,414	25,756
Field Engineering, Training and Manuals			
# Technical training of military and contractor personnel participating in the Joint Task Group evaluations of new weapons prior to complete engineering release	6,364	5,700	5,900
Total, Field Engineering, Training and Manuals	6,364	5,700	5,900
Complex Downsizing			
# Complete Nonnuclear Reconfiguration.	22,438	1,092	0
# Stockpile Management Restructuring Initiative-Kansas City Plant.	2,196	5,499	8,155
# Stockpile Management Restructuring Initiative-Pantex Plant.	385	1,057	2,339
# Stockpile Management Restructuring Initiative-Savannah River Site.	3,297	2,300	2,700
# Stockpile Management Restructuring Initiative-Y-12 Plant.	6,031	11,902	13,594
Total, Complex Downsizing	34,347	21,850	26,788
Project Support/Facility Startup/Standby and Decontamination and Disposition of Facilities			
# Operating support of construction projects	20,554	32,804	22,836
# Enriched Uranium Operations at the Y-12 Plant	60,648	30,035	0

	(dollars in thousands)		
	FY 1998	FY 1999	FY 2000
# Maintaining standby facilities for future use and decontamination and disposition of production equipment, facilities and land	2,265	5,163	7,133
Total, Project Support/Facility Startup/Standby and Decontamination and Disposition of Facilities	83,467	68,002	29,969
Special Projects and Other			
# Items at Headquarters/Other include nuclear criticality, Defense Programs Analysis Group, Amarillo National Resource Center for Plutonium, and Environmental Surety	16,535	50,454	40,257
# Items at the Albuquerque Operations Office include support for aviation services, radiation effects research, support for environmental impact statements, and other complex-wide efforts	2,118	9,633	11,226
# Funding at the Oak Ridge Operations Office provides support for resumption activities and manufacturing process and stockpile support systems at the Y-12 Plant	52,177	33,389	20,269
# Funding at the Savannah River Operations Office provides for Safeguards and Security Costs for the Tritium area at the Savannah River Site and for other activities that provide direct programmatic support	6,737	5,576	5,854
Total, Special Projects and Other	77,567	99,052	77,606
Capital Equipment			
# Capital equipment is required by the four production plants and three weapons laboratories to maintain the capabilities necessary for stockpile maintenance, stockpile evaluation, and dismantlement activities.	33,505	20,102	1,250

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
General Plant Projects			
# General Plant Projects provide funding for low cost construction projects (less than $5 million) required to maintain the infrastructure and ongoing Stockpile Management programs of the four production plants and the three weapons laboratories.	13,558	23,842	2,642
Construction			
# See "Capital Operating Expenses and Construction Summary" for details	83,370	97,658	94,679
Total, Core Stockpile Management	1,502,193	1,620,412	1,552,000

Explanation of Funding Changes from FY 1999 to FY 2000

	FY 2000 vs. FY 1999 ($000)
Stockpile Maintenance	
# FY 1999 and FY 2000 funding for LLCE component support is largely driven by production costs for the W76 neutron generator which is scheduled for delivery in October 1999	+1,014
# FY 1999 and FY 2000 funding for stockpile refurbishment is driven by schedules to meet the first delivery unit (FDU) for the W87 Life Extension Program in December 1998 and ramp up to steady state production	+15,948
# Other refurbishment efforts during the FY 1998-FY 2000 time frame include the B61 Alts 335 and 339, and the B83-1 Quality Improvement Program	-15,432
Total, Stockpile Maintenance	+ 1,530
Stockpile Evaluation	
# Increase is driven by lab test and flight test requirements for the W76, W87 and W88 and doubling up of B-61 testing to meet schedule requirements associated with the expiration of the Nuclear Explosive Safety Study	+28,144

	FY 2000 vs. FY 1999 ($000)
Dismantlement	
# This decrease reflects workload efficiencies, few start-ups, and reduced costs associated with staging of warheads. FY 1999 efforts will focus on completion of the W69 and ramp-up of the W79 and W56 for projected dismantlements of approximately 275 weapons. In FY 2000, dismantlement is scheduled to begin on the B53 and continue on the W56 and W79, for projected dismantlement of approximately 375 weapons	-22,947
Materials Recycle and Recovery	
# This increase of about 10 percent is reflected at the Y-12 Plant. Funding requirements for this category increase as Enriched Uranium Operations are resumed. This is driven by operation of the recovery furnace in Building 9206 and the production of enriched uranium buttons to support casting needs..	+12,385
Storage	
# This 2.6 percent increase is reflected at the Y-12 Plant and is driven by the development and implementation of storage technologies to improve nuclear materials accountability in storage and processing facilities, and storage area modifications to enable the Plant to meet its dismantlement mission	+2,569
Transportation	
# The decrease of $3.8 million is driven by reduced funding requirements for the SafeGuards Transporter. While deliveries for FY 1999 and FY 2000 are constant (six per year), funding decreases because of the inclusion of long-lead procurement in the FY 1999 program	-3,800
Pit Production	
# Funding for Transition Manufacturing and Safety Equipment needed for building the W88 pit and meeting the FY 2001 stockpile delivery commitment, and continued safe facility operations.	+10,000
# Efforts to continue the recapture of required technologies for the W88, B61-7, and W87 and fabrication of W88 pits for certification and qualification will continue with the goal of providing war-reserve pits for the stockpile in 2001	+2,737
Total Funding Change, Pit Production	+12,737

	FY 2000 vs. FY 1999 ($000)
Containers	
# Funding for containers reflects a decrease of about 6 percent over the FY 1999 level which is driven by the completion of the design efforts and the reduced repackaging effort associated with the AL-R8 Sealed Insert Upgrade. The Department has been conducting R&D efforts on this container as an option for long-term storage of pits and will complete the design review in FY 1999	-1,658
Field Engineering, Training and Manuals	
# There is no significant change between the two years in this category	+200
Complex Downsizing	
# FY 2000 funding for Complex Downsizing increases by about 23 percent over the FY 1999 level driven by increases in operating support of the Stockpile Management Restructuring Initiative at the Kansas City and Y-12 Plants	+4,938
Project Support/Facility Startup/Standby and Decontamination and Disposition of Facilities	
# The $35 million decrease from FY 1999 is largely driven by the completion of Enriched Uranium Operations Process Based Restart at the Y-12 Plant in FY 1999..	-30,035
# There are also decreased requirements for construction project support at the Pantex Plant	-7,998
Total Funding Change, Project Support/Facility Startup/Standby and Decontamination and Disposition of Facilities	-38,033
Special Projects and Other	
# Reduced funding for Environmental Surety efforts at INEEL and other special projects	-3,326
# Completion of cooperative agreement with the state of Texas for funding of the Amarillo National Resource Center for Plutonium	-5,000
# Termination of contractor support to the Oak Ridge Operations Office supporting Enriched Uranium Operations process based restart and reduced funding for manufacturing process and stockpile support systems at the Y-12 Plant	-13,120
Total, Special Projects and Other	-21,446

	FY 2000 vs. FY 1999 ($000)
Capital Operating Expenses and General Plant Projects	
# The decrease from FY 1999 is driven by the nonrecurring Congressional add-on for infrastructure and maintenance needs in FY 1999	-40,052
Core Stockpile Management Construction	
# The decrease is driven by the deferral of FY 1999 to allow execution of Congressionally directed external assessment of thee projects to be completed. Additionally, no FY 2000 funding has been requested for the Nuclear Materials Storage Facility Renovation. Questions regarding approach, design and cost remain. These decreases are partially offset by an increase for the CMR Upgrade Project.	-2,979
Total Funding Change, Core Stockpile Management	-68,412

Capital Operating Expenses & Construction Summary

Capital Operating Expenses

(dollars in thousands)

Core Management	FY 1998	FY 1999	FY 2000	$ Change	% Change
Capital Equipment	33,505	20,102	1,250	-18,852	-93.8%
General Plant Projects	13,558	23,842	2,642	-21,200	-88.9%
Total, Capital Operating Expenses	47,063	43,944	3,892	-40,052	-91.1%

Construction Projects

(dollars in thousands)

	Total Estimated Cost (TEC)	Prior Year Approp-riations	FY 1998	FY 1999	FY 2000	Unapprop--riated Balance
99-D-132, Nuclear Materials S&S Upgrades Project, LANL	60,746	0	0	9,700	11,300	39,746
99-D-128, SMRI, Pantex Consolidation	13,218	0	0	1,108	3,429	8,681
99-D-127, SMRI, Kansas City Plant II . .	119,500	0	0	13,700	17,000	88,800
99-D-125, Replace Boilers & Controls, KCP	14,000	0	0	1,000	0	13,000
99-D-123, Replace Mechanical Utility Systems, Y-12 Plant	4,330	0	0	1,900	0	2,430
99-D-122, Rapid Reactivation, VL	22,900	0	0	11,200	11,700	0
98-D-124, SMRI, Y-12 Consolidation . .	24,800	0	6,450	10,700	3,150	4,500
98-D-123, SMRI, Tritium Facility Modernization & Consolidation, SR . . .	98,400	0	11,000	27,500	21,800	38,100
97-D-124, Steam Plant Waste Water Treatment Facility Upgrade, Y-12	2,500	600	1,900	0	0	0
97-D-123, Structural Upgrades, KCP . .	18,000	1,400	0	6,400	4,800	5,400
97-D-122, Nuclear Materials Storage Facility Renovation, LANL	22,364	4,000	9,200	2,500	0	6,664
96-D-123, Retrofit HVAC and Chillers, Y-12	12,800	10,100	2,700	0	0	0
96-D-122, Sewage Treatment Quality Upgrade, PX	11,300	700	6,900	3,700	0	0
95-D-122, Sanitary Sewer Upgrade, Y12	32,000	19,400	12,600	0	0	0
95-D-102, CMR Upgrades, LANL	174,100	67,740	5,000	5,000	18,000	78,360

	Total Estimated Cost (TEC)	Prior Year Approp-riations	FY 1998	FY 1999	FY 2000	Unapprop--riated Balance
94-D-125, Upgrade Life Safety, KCP . .	14,700	12,700	2,000	0	0	0
94-D-124, Hydrogen Fluoride Supply System, Y-12 Plant	26,300	24,900	1,400	0	0	0
93-D-122, Life Safety Upgrades, Y-12 .	29,200	23,850	2,100	3,250	0	0
92-D-126, Replace Emergency Notification Systems, VL	28,800	17,100	3,200	0	0	8,500
88-D-123, Security Enhancements Project, PX	131,200	125,000	0	0	3,500	2,700
88-D-122, Facilities Capability Assurance Program, VL	398,724	379,804	18,920	0	0	0
Total, Construction			83,370	97,658	94,679	296,881

Major Items of Equipment *(TEC $2 Million or Greater)*

(dollars in thousands)

	Total Estimated Cost (TEC)	Prior Year Approp-riations	FY 1998	FY 1999	FY 2000	Acceptance Date
Replacement Aircraft	13,000	0	0	13,000	0	FY 1999
O-Wing Primary Mill Electrical Upgrade	3,500	0	0	3,500	0	FY 2000
Total, Major Items of Equipment .		0	0	16,500	0	

Enhanced Surveillance

Mission Supporting Goals and Objectives

The Enhanced Surveillance Program is a complex-wide initiative developing predictive measures to address the maintenance needs of the stockpile. The basic goals of the enhanced surveillance program are to predict defects that might occur in the enduring stockpile due to aging or other reasons, to develop a means to assess safety and reliability impacts, and to ensure problems are corrected before they reduce safety or reliability. Enhanced surveillance techniques will extend capabilities to predict the effects of materials aging on components and weapons performance, to determine which components are liable to fail, and to estimate failure dates. Successful completion of key activities under this 5-7 year program will provide the diagnostic tools and data essential to advance warning of stockpile defects and essential to Stockpile Life Extension Program planning. The Enhanced Surveillance Program will build upon existing Defense Programs' research and development, testing (nonnuclear), and stockpile evaluations/surveillance activities and will develop new predictive models, new techniques for data analysis, and may eventually lead to in-situ, real-time, non-destructive monitoring for warheads. The Enhanced Surveillance Program Plan issued by Headquarters and updated on an annual basis includes 10 focus areas consisting of tasks with detailed schedules, milestones, and deliverables. Each task description also includes site participants, required site funding, risk assessment, and discussion of leveraged work funded through other sources.

Ongoing Activities

Adhering to schedules in the Enhanced Surveillance Program (ESP) Plan for activities that enhance knowledge of weapon-relevant physical processes affecting aging and operation of weapon components.

Funding Schedule

(dollars in thousands)

	FY 1998	FY 1999	FY 2000	$ Change	% Change
Enhanced Surveillance	48,714	81,511	85,290	3,779	4.6%
Total, Enhanced Surveillance . . .	48,714	81,511	85,290	3,779	4.6%

Detailed Program Justification

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
# Delivery of diagnostic tools for surveillance of nuclear components	14,736	25,447	22,617
# Delivery of diagnostic tools for surveillance of nonnuclear components	11,508	19,020	23,366
# Delivery of predictive capabilities for nuclear components	13,170	20,858	17,989
# Delivery of predictive capabilities for nonnuclear components	9,300	16,186	21,318
Total, Enhanced Surveillance	48,714	81,511	85,290

Explanation of Funding Changes from 1999 to FY 2000

	FY 2000 vs. FY 1999 ($000)
# Increase reflects transitioning of laboratory demonstrated tools into plant operations and the acceleration of research vital to providing SLEP with data upon which to base stockpile retrofit decisions, especially for the W76 and W80 warheads	+3,779
Total Funding Change, Enhanced Surveillance	+3,779

Advanced Manufacturing, Design & Production Technologies

Mission Supporting Goals and Objectives

The goal of the Advanced Manufacturing, Design and Production Technologies initiative is to reengineer the weapons complex product realization capabilities and support the Stockpile Life Extension Program by developing, validating, and implementing advanced tools, manufacturing processes, and practices needed to design, develop, and fabricate nuclear weapons systems and components of improved quality at reduced cost. The application of advanced manufacturing technologies will radically change the way the DOE designs, builds, and test systems and components by infusing new product and process technology and adopting modern business and engineering practices. ADAPT is the Defense Programs' vehicle for improving product realization within a downsized enterprise. ADAPT cuts across all levels of process and product development from the manufacture of materials to the integration of thousands of parts into a weapon. The requirements and objectives for the ADAPT Program and other advanced manufacturing programs are set forth in the Stockpile Stewardship Plan (Green Book) and are further refined in the ADAPT Master Plan. Major long term goals include the reduction of the occurrence of design and manufacturing defects in replacement hardware by a factor of ten and the reduction of the time and cost required to realize these products by a factor of two.

The ADAPT program has four elements:

- Enterprise Integration (EI), which provides new and improved information tools for DOE nuclear weapons design and manufacturing activities;
- Integrated Product and Process Design (IPPD)/Agile Manufacturing(AM), which develops and deploys new design and manufacturing capabilities;
- Process Development (PD), which develops and implement new production processes and continuously improves existing processes; and
- Hedge Technologies (HT), which performs development activities to prepare to respond to possible contingencies.

Funding Schedule

(dollars in thousands)

	FY 1998	FY 1999	FY 2000	$ Change	% Change
Advanced Manufacturing, Design and Production Technologies . . .	90,098	79,520	85,000	5,480	6.9%
Total, Advanced Manufacturing, Design and Production Technologies	90,098	79,520	85,000	5,480	6.9%

Detailed Program Justification

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
# Process Development	47,593	42,709	41,750
# Enterprise Integration	19,500	17,399	17,350
# IPPD/Agile Manufacturing	22,084	19,012	25,150
# Hedge Technologies	921	400	750
Total, ADAPT	90,098	79,520	85,000

Explanation of Funding Changes from 1999 to FY 2000

	FY 2000 vs. FY 1999 ($000)
# In Enterprise Integration, both the Integrated Production Scheduling System (IPSS) and the Enterprise Modeling (EM) efforts will receive additional funding. The IPSS will complete a first prototype in the 3rd quarter of FY 1999 and the EM user's environment will be completed in the 4th quarter of FY 1999. Development of these tools is being accelerated so that they will be available to support outyear Stockpile Life Extension Program (SLEP) refurbishment schedules.	-49
# In IPPD/Agile Manufacturing, the increase will be applied to continued accelerated development, installation and evaluation of the Production Realization Environment and collaboration tools and databases to support the ongoing development projects to ensure availability of key tools and processes on schedules dictated by SLEP..	+6,138
# In process development, funding will be used to further develop processes needed to support emerging SLEP activities. .	-959
# The increase for Hedge Technologies in FY 2000 reflects continued work on preconceptual design planning for Rapid Reconstitution of Pit Production.	+350
Total Funding Change, ADAPT	+5,480

Radiological/Nuclear Accident Program

Mission Supporting Goals and Objectives

The Radiological\Nuclear Accident Program provides the capability for DOE to immediately respond to radiological accidents/incidents worldwide. This program provides overall program management and organizational structure during both emergency and non-emergency conditions for the personnel, equipment, and activities that collectively comprise the response capability. The emergency response assets are staffed primarily by engineers, scientists, and other technical personnel from the national laboratories, production facilities, and other DOE management and operating contractors supporting the nuclear weapons complex. The funding for this program is allocated to 15 nation-wide Department locations with the Nevada and Albuquerque Operations Offices, and the Los Alamos (LANL), Lawrence Livermore (LLNL), and Sandia National Laboratories (SNL) receiving the majority of the funding.

Funding Schedule

(dollars in thousands)

	FY 1998	FY 1999	FY 2000	$ Change	% Change
Radiological/Nuclear Accident Response	78,808	76,200	77,600	+1,400	0.0%
Total, Radiological Nuclear Accident Response	78,808	76,200	77,600	+1,400	0.0%

Detailed Program Justification

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
Nuclear Emergency Search Team			
# Provides the U.S. Government's technical response to an act of nuclear terrorism. NEST is directed by DOE Headquarters and utilizes the expertise throughout the weapons complex, i.e., LANL, LLNL, SNL, Nevada Operations Office, Oak Ridge Institute for Science and Technology, and the Pantex plant.	44,511	43,816	45,239
Federal Radiological Monitoring and Assessment Center			
# FRMAC is a single source of compiled and quality controlled radiological monitoring and assessment data for any federal agency, State, Tribal or local authority involved in resolving a radiological incident. FRMAC is managed by the Nevada Operations Office.	1,579	1,217	1,217
Atmospheric Release Advisory Capability			
# ARAC, located at LLNL, provides rapid predictions and projections of the dosage and amount of radio nuclides potentially transported, diffused and/or deposited into the atmosphere and the resulting impact on people and the environment.	6,838	5,701	4,846
Aerial Measurement System			
# (AMS) located at the Nevada Operations Office, is an aerial detection system capable of measuring gamma radiation for locating and tracking airborne radiation	10,120	9,980	9,980
Accident Response Group			
# ARG is responsible for the resolution of accidents or significant incidents involving U.S. nuclear weapons. ARG is managed by the Albuquerque Operations Office..	12,412	12,084	12,084

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
Radiological Emergency Assistance Center/Training Site			
# REAC/TS, located in Oak Ridge, provides medical advice, specialized training, and on-site assistance, in the treatment of all types of radiation exposure accidents	994	974	1,174
Radiological Assistance Program			
# RAP provides a local capability and first response to request for assistance during a radiological accident or incident. There are eight RAP regions: Brookhaven Area Office, Oak Ridge Operations Office, Savannah River Operations Office, Albuquerque Operations Office, Chicago Operations Office, Idaho Operations Office, Oakland Operations Office, and the Richland Operations Office.	2,354	2,288	2,860
Special Applications			
# Provides for classified activities and exercises associated with the seven emergency response assets; includes costs associated with Technical integration activities that are crosscutting to the emergency response assets, and contractor support to achieve projected objectives related to the NEST and ARG activities	0	140	200
Total, Radiological/Nuclear Accident Response	78,808	76,200	77,600

Explanation of Funding Changes from FY 1999 to FY 2000

	FY 2000 vs. FY 1999 ($000)
# The increase in the FY 2000 funding level will ensure that all activities will be maintained at the current readiness level for all assets	+1,400
Total Funding Change, Radiological/Nuclear Accident Response	+1,400

Tritium Source

Mission Supporting Goals and Objectives

On December 5, 1995, DOE issued a Tritium Supply and Recycling Record of Decision (ROD), that selected the two most promising alternative technologies for tritium production and established a dual-track strategy that would, within 3 years, select one of those technologies to become the primary tritium supply technology. The other technology, if feasible would be developed as a backup tritium source. Under the dual-track strategy, DOE would: 1) initiate the purchase of an existing commercial reactor (operating or partially complete) or irradiation build, and test critical components of an accelerator system for tritium production. Any new facilities that might be required, the production-scale accelerator and a Tritium Extraction Facility to support the commercial reactor alternative, would be constructed at DOE's Savannah River Site in South Carolina. The ROD also stated that DOE's Fast Flux Test Facility at the Hanford Reservation in Washington would be examined for a possible tritium production role although it had been previously rejected as a reasonable alternative.

On December 22, 1998, the Secretary of Energy announced his decision to select the use of commercial light water reactors for tritium production. The preferred reactors are the Watts Bar reactor and Sequoyah reactors located in Tennessee. Each of these reactors is operated by the Tennessee Valley Authority, an independent government agency. The linear accelerator option was designated a "backup" technology. The Fast Flux Test Facility will have no tritium production role. This ROD revises the December 1995 Tritium Supply and Recycling Record of Decision and completes the process of selecting a single technology for tritium production.

Funding Schedule

(dollars in thousands)

	FY 1998	FY 1999	FY 2000	$ Change	% Change
Operating Expenses					
Accelerator Production of Tritium	131,251	85,000	57,000	-28,000	-32.9%
Light Water Reactor Target Development	52,089	56,000	49,000	-7,000	-12.5%
Total, Operating Expenses	183,340	141,000	106,000	-35,000	-24.8%
Construction					
Construction, APT	67,865	20,000	31,000	+11,000	+55.0%
Construction, CLWR	9,650	6,000	33,000	+27,000	+450.0%
Total, Construction	77,515	26,000	64,000	+38,000	+146.2%
Total, New Tritium Source	260,855	167,000	170,000	+3,000	+1.8%

Detailed Program Justification

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
Accelerator Production of Tritium (Operations & Maintenance)			
# Development and demonstration of key components of the linear accelerator and target/blanket technologies. Development activities include demonstration of integrated high-power operation of the Low Energy Demonstration Accelerator, fabrication and high-field testing of a prototypic superconducting radio-frequency cryomodule and high-power couplers, materials performance analysis, target/blanket development, and validation of neutron and tritium production codes	131,251	85,000	57,000
Commercial Light Water Reactor (Operations & Maintenance)			
# Continue the Tritium Producing Burnable Absorber Rod (TPBAR) Technology which will include: transfer designer-of-record activities to manufacturer, establish TPBAR manufacturing processes, conduct Lead Test Assembly destructive tests, complete component performance tests, procurement of long-lead materials for fabrication of TPBAR, award contract for long-term transportation, develop TPBAR handling processes and procedures, submit requests to the Nuclear Regulatory Commission to amend Watts Bar and Sequoyah reactor operating licenses	52,089	56,000	49,000
Accelerator Production of Tritium (Construction)			
# Continue preliminary design of the accelerator, target/ blanket, tritium separation, and balance of plant facilities. During preliminary design, design packages will be developed for each major facility subsystem and prototype design will be completed for a few key items that would be needed early in construction should APT be activated as the primary tritium production source. . .	67,865	20,000	31,000

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
Commercial Light Water Reactor (Construction)			
# Begin detailed design (Title II) of the Tritium Extraction Facility and begin site preparation	9,650	6,000	33,000
Total, Tritium Source	260,855	167,000	170,000

Explanation of Funding Changes from FY 1999 to FY 2000

	FY 2000 vs. FY 1999 ($000)
# The FY 2000 budget request includes $170.0 million, $3 million increase over the FY 1999 request, to begin site preparation for construction of the Tritium Extraction Facility at the Savannah River Site and continue preliminary design of essential elements of the APT	+3,000
Total Funding Change, Tritium Source	+3,000

Materials

Mission Supporting Goals and Objectives

Congress, in the FY 1998 Energy & Water Appropriations Act, transferred responsibility for DP materials at the Rocky Flats Environmental Technology Site and the Fernald Environmental Management Project (FEMP) to the Office of Environmental Restoration and Waste Management (EM) in order to simplify the management issues associated with environmental restoration activities at these sites. Consistent with this action by Congress, the Department (in FY 1999) transferred management and funding responsibility for materials at remaining EM-landlord locations from Defense Programs to EM (Idaho, Richland, and Savannah River). DP retains ownership of national security materials. Also included in the transfer are certain neutron source disposition activities at LANL.

Beginning in FY 1999, the Materials program supports only programmatic activities that include: the operation of Building 9206 at Y-12 Plant until phaseout and transfer to Building 9212; decontamination and refinement of surplus precious metals; operation of U-233 Storage and Distribution Center at ORNL; the recovery of materials from irradiated targets and the manufacture of radiation sources for Defense Programs and for other federal civilian and defense activities at the ORNL Radiochemical Engineering Development Center; and the processing of highly enriched uranium scrap from across the DOE complex to improve the accuracy of measurements, to allow for increased efficiencies in storing the materials, and to allow for other beneficial uses of the materials.

Funding Schedule

(dollars in thousands)

	FY 1998	FY 1999	FY 2000	$ Change	% Change
Materials	60,419	27,911	28,410	499	1.8%
Total, Materials	60,419	27,911	28,410	499	1.8%

Detailed Program Justification

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
Maintain safe, secure compliant storage of DP nuclear material at EM-landlord sites (transfer in FY 1999)	33,116	0	0
Excess Nuclear Materials Management & Storage	2,187	2,602	1,851
Special Chemical Operations	2,771	4,093	3,593
Process Pu-239/Be sources	1,881	0	0
Processing of Nuclear Materials	2,569	3,176	3,176
U-233 Storage and Distribution	9,158	10,615	12,100
Californium Industrial Sales/Loan	1,500	1,466	1,500
MK 42 Processing (Pu-242)	4,237	4,209	3,190
Uranium Scrap Recovery/Commercial Facilities	3,000	1,750	3,000
Total, Materials	60,419	27,911	28,410

Explanation of Funding Changes from FY 1999 to FY 2000

	FY 2000 vs. FY 1999 ($000)
# FY 2000 reflects an increase in U-233 Storage and Distribution in order to meet the Secretary's commitment to DNFSB Recommendation 97-1, Safe Storage of Uranium-233	+499
Total Funding Change, Materials	+499

99-D-122, Rapid Reactivation, Various Locations

(Changes from FY 1999 Congressional Budget Request are denoted with a vertical line [|] in the left margin.)

Significant Changes

- # Total Estimated Cost has decreased $4,100,000 to $22,900,000 and the Total Project Cost has decreased $3,925,000 to $29,852,000 as a result of the descoping of certain production equipment from this line item and inclusion of FY 1997 and FY 1998 operating activities.
- # Project start date has slipped six months due to delay in release of FY 1999 funds. Funding is being withheld pending completion of Congressionally mandated external reviews.

1. Construction Schedule History

	Fiscal Quarter				Total Estimated Cost ($000)	Total Project Cost ($000)
	A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
FY 1999 Budget Request *(Preliminary Estimate)*	1Q 1999	Various [a]	3Q 1999 [a]	4Q 2001	27,000	33,777
FY 2000 Budget Request *(Current Baseline Estimate)*	3Q 1999	Various [a]	1Q 2000 [a]	4Q 2001	22,900 [b]	29,852 [b]

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
Design/Construction			
1999	11,200	11,200	6,900
2000	11,700	11,700	9,600
2001	0	0	6,400

[a] Project activities will be coordinated and phased with ongoing facility operations at SNL, KCP, and LANL; most equipment requirements are drawn from reuse of preexisting equipment specifications developed for Non-Nuclear Reconfiguration (NNR).

[b] Descoping of production equipment at Kansas City Plant results in a reduction to total estimated cost and total project cost of $4,100,000. Inclusion of FY 1997 and FY 1998 operating activities results in a $175,000 increase in total project costs.

3. Project Description, Justification and Scope

The FY 1993 Nonnuclear Reconfiguration Project (NNR), Project Number 93-D-123, was initiated to downsize the nonnuclear manufacturing component of the nuclear weapons complex while maintaining production capacities at a certain level. The reservoir production mission was transferred to the Kansas City Plant (KCP), the neutron generator production mission was transferred to the Sandia National Laboratories (SNL), and the neutron tube target loading mission was transferred to the Los Alamos National Laboratory (LANL). The production capacity for the reconfigured production complex was based upon a START II requirement base for decreased stockpile levels, but production capacities were not impacted. Subsequent direction has required the production complex to support a START II stockpile level while protecting the capability of reconstituting back to a START I level, referred to as START II with Hedge. As a result, the KCP, SNL, and LANL submitted plans and budget requirements to acquire the increased capacity necessary to support reconstitution of START I (START II with Hedge) levels.

The existing nuclear weapons complex was scoped under NNR using START II as criteria for equipment and facility requirements. This project will increase the complex's capability to protect START I (START II with Hedge) requirements. Minor facility modification and additional equipment is required, and therefore, included under this line item, to increase capacity to provide START I (START II with Hedge) requirements.

Rapid Reactivation will make use of the FY 1993 NNR Project Development, planning and management tools and documentation to the greatest extent practical. Rapid Reactivation activities for the Los Alamos and Kansas City subprojects are within the activity envelope of the Environmental Assessment conducted for nonnuclear manufacturing consolidation, which resulted in a Finding of No Significant Impact. The SNL requires preparation of an Environmental Assessment, which will be completed in FY 1999. All existing environmental and safety documentation will be appropriately reviewed for currency and adequacy, updated as required.

Rapid Reactivation requirements necessitate scope of work activities as follows: (1) The LANL subproject consists of designing, constructing, and installing a third target loader within the existing space of the Neutron Tube Target Loading facility (NTTL); (2) The Kansas City Plant subproject consists of rearranging existing space in, and adding additional space to, the current Reservoir Assembly Facility, and the procurement of additional production/process equipment; and (3) the SNL subproject consists of rearranging existing space within Building 870, adding additional space to adjacent buildings, and the procurement of additional production equipment.

Incorporation of these product line enhancements into KCP, SNL, and LANL facilities will be accomplished by rearranging and upgrading space within existing buildings, purchasing new product equipment, installation of some of the transferred and new equipment and associated support systems. Due to production schedules and other time constraints, interim equipment staging and testing may precede final equipment placement and the capital interim activities associated with final placement.

Sandia National Laboratories: Neutron Generators Facilities (NGF): TEC - $15,600,000

TEC	Previous	FY 1999	FY 2000	Outyear	Construction Start-Completion Dates
$15,600	$ 0	$ 5,630 [c]	$9,970 [c]	$ 0	3Q 1999 - 4Q 2001

The SNL subproject consists of rearranging existing space within Building 870, adding additional space to adjacent buildings, and the procurement of additional production equipment.

Kansas City Plant: Reservoir Assemblies and Testing: TEC - $4,400,000

TEC	Previous	FY 1999	FY 2000	Outyear	Construction Start-Completion Dates
$ 4,400 [d]	$ 0	$ 4,400	$ 0	$ 0	3Q 1999 - 4Q 2000

The Kansas City Plant subproject consists of rearranging existing space in, and adding additional space to, the current Reservoir Assembly Facility, and the procurement of additional production/process equipment.

Los Alamos National Laboratory: Neutron Tube Target Loading: TEC - $2,900,000

TEC	Previous	FY 1999	FY 2000	Outyear	Construction Start-Completion Dates
$ 2,900	$ 0	$ 1,170	$1,730	$ 0	3Q 1999 - 4Q 2000

The LANL subproject consists of designing, constructing, and installing a third target loader within the existing space of the Neutron Tube Target Loading facility (NTTL).

Project Milestones

FY 1999: Title I/II design complete; initiate procurement and construction.

FY 2000: Continue procurement; continue installation and complete physical construction at Los Alamos National Laboratory and the Kansas City Plant.

[c] FY 1999 subproject funding increased (FY 2000 correspondingly decreased) to reflect priorities given removal of high priority Kansas City Plant equipment scope.

[d] Subproject TEC reduced as a result of descoping certain production equipment from this line item, based upon receipt of $4,000,000 FY 1998 Congressional add-on funding for equipment procurement.

4. Details of Cost Estimate

(dollars in thousands)

	Current Estimate	Previous Estimate
Design Phase		
Preliminary and Final Design costs (Design Drawings and Specifications)	731	731
Design Management Costs (0.8% of TEC)	190	190
Project Management Costs (0.4% of TEC)	94	94
Total Design Costs (4.4% of TEC)	1,015	1,015
Construction Phase		
Buildings	5,303	5,303
Special Equipment	7,428	7,428
Standard Equipment	4,230	7,400
Inspection, Design and Project Liaison, Testing, Checkout and Acceptance	1,010	1,010
Construction Management (2.1% of TEC)	475	475
Project Management (1.1% of TEC)	261	261
Total Construction Costs (81.7% of TEC)	18,707	21,877
Contingencies		
Design Phase (0.7% of TEC)	157	160
Construction Phase (13.2% of TEC)	3,021	3,948
Total Contingencies (13.9% of TEC)	3,178	4,108
Total, Line Item Costs (TEC) [e]	22,900	27,000

5. Method of Performance

Design and inspection shall be performed under a negotiated architect-engineering contract. Construction and procurement shall be accomplished by fixed-price contracts awarded after competitive proposals and administered by the DOE and Contractor staff. However, operating contractor personnel may perform design and construction roles for activities determined to be cost effective. Procurement of standard equipment will be administered by the DOE and Contractor staff on the basis of competitive proposals.

[e] Escalation rates taken from the FY 1999 DOE escalation multiplier tables.

6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 1998	FY 1999	FY 2000	FY 2001	Outyears	Total
Total project costs							
Total facility costs							
Design	0	0	1,172	0	0	0	1,172
Construction	0	0	5,728	9,600	6,400	0	21,728
Total facility costs (Federal and Non-Federal)	0	0	6,900	9,600	6,400	0	22,900
Other project costs							
Conceptual design cost	100	0	0	0	0	0	100
NEPA documentation costs	0	25	50	0	0	0	75
Other project-related costs	0	0	2,547	2,440	1,790	0	6,777
Total other project costs	100	25	2,597	2,440	1,790	0	6,952
Total Project Cost (TPC)	100	25	9,497	12,040	8,190	0	29,852

7. Related Annual Funding Requirements

(FY 2001 dollars in thousands)

	Current Estimate	Previous Estimate
Related annual costs (estimated life of project--30 years)		
Total related annual funding (operating from FY 2001 through FY 2030) [f]	0	0

[f] Activities will principally reside within the footprint of existing facilities.

99-D-127, Stockpile Management Restructuring Initiative—Kansas City Plant, Kansas City, Missouri

(Changes from FY 1999 Congressional Budget Request are denoted with a vertical line [|] in the left margin.)

Significant Changes

The Total Estimated Cost (TEC) has decreased from $122.5 million to $119.5 million and the Total Project Cost (TPC) has increased from $139.5 million to $139.7 million. The reduction in TEC is due to compressing the schedule from seven years to six years, thereby reducing escalation, and incorporating changes in scope. Scope changes include deletion of the West Data Center relocation and F-Aisle modification project, the addition of a downsized cafeteria relocation and the addition of equipment procurement to replace heat treat equipment unlikely to survive relocation.

The increase in TPC is the result of including an additional $3.2 million for equipment engineers that was pointed out in the project's independent assessment.

1. Construction Schedule History

	Fiscal Quarter				Total Estimated Cost ($000)	Total Project Cost ($000)
	A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
FY 1999 Budget Request *(Preliminary Estimate)*	1Q 1999	2Q 2004 [a]	3Q 1999	3Q 2006	122,500	139,500
FY 2000 Budget Request *(Current Baseline Estimate)*	2Q 1999	3Q 2004	3Q 1999	2Q 2005	119,500	139,700

[a] The work packages will be phased as required to maintain production operations. Title I design, Title II design and construction of work packages occur simultaneously after 3rd Qtr. FY 1999.

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
Design/Construction			
1999	13,700	13,700	9,725
2000	17,000	17,000	18,139
2001	29,200	29,200	24,529
2002	31,300	31,300	32,901
2003	14,000	14,000	17,999
2004	14,300	14,300	16,131
2005	0	0	76

3. Project Description, Justification and Scope

The end of the Cold War radically changed the defense posture of the United States, calling for significant changes and reductions in nuclear weapons complex structure and operations. The initial phase of this retrenchment began when the Department of Energy (DOE) decided to cease nonnuclear production at three plants and consolidate most of its nonnuclear manufacturing at the Kansas City Plant. However, even with the influx of new missions, the downturn in defense production meant continued reductions in operating costs and work force.

The Stockpile Management Restructuring Initiative provides a cost-effective plan that capitalizes on the Kansas City Plant's logistic and manufacturing expertise to ensure quality nonnuclear products through the year 2010 and beyond. Furthermore, the initiative minimizes DOE costs in the near term by lessening risks and reducing operating expenditures concurrent with capital investments. It also provides the technical capability, production capacity, and flexibility necessary to allow the Kansas City Plant to support scheduled nonnuclear production and a wide range of unanticipated production requirements, confidently and effectively.

The Stockpile Management Restructuring Initiative will allow the Kansas City Plant's infrastructure to be altered and greatly reduced from the current plant profile, substantially reducing costs to operate the Kansas City Plant. The restructuring initiative consists of changing the existing plant and operational approach in four major aspects: 1) physically reducing the size of the facility, 2) changing the approach to manufacturing from product-based to process-based, 3) reducing the support infrastructure appropriate for the right-sized operation, and 4) further streamlining the organizational structure to focus directly on the core manufacturing mission.

Currently, the Kansas City Plant consists of approximately 3.2 million square feet of floor space contained in three connected buildings: the main building, the manufacturing support building (MSB) and the technology transfer center (TTC). Approximately 3 million square feet of floor space is core stockpile management funded. Much of the floor space is underutilized and costly to maintain. The Kansas City Plant will be rearranged into three business units and a support operations business unit to bring about an overall reduction in total managed floor space, streamline operations, and produce

increased long-term operating efficiencies in manufacturing processes. The approximate square footage of each business unit after consolidation is as follows:

	Square Ft.
Electrical Products Business Unit	236,000
Mechanical Business Unit	350,000
Engineered Materials Business Unit	198,000
Support Operations Business Unit	850,000
Vacant, Unallocated and Unusable	666,000
Total	2,300,000

Electronics Products Business Unit (EPBU) Technology Overview

The electronics products factory includes three process modules: microelectronics, interconnects, and final assembly. Each electronic process module will fabricate all product lines that require the processes of that module. In addition to the three process modules, there will be three manufacturing areas for specialized products: Joint Test Assembly (JTA), Special Electronic Assembly (SEA), and Test Equipment.

The three process modules are:

Microelectronics: All substrates, hybrid microcircuits, chip packages, and leadless chip carriers that require clean room processing are fabricated in the state-of-the-art microelectronics module. The module is located in the new microelectronics facility which was completed in June 1995 and will become fully operational in September 1998.

Interconnects: The interconnects module contains all the processes used to attach and interconnect components. This includes processes such as welding, conventional hand soldering, wave soldering, vapor phase soldering, and belt furnace re-flow soldering. In addition to printed wiring assemblies, interconnect products, such as cables and junction boxes, can be fabricated in this module.

Final Assembly: The fabrication of complete electronic systems is performed in the final assembly module. This consists of the assembly and encapsulation of all components required for complete electronic products. Procured components, printed wiring assemblies, and manufactured hardware are assembled to produce complete electronic systems such as radars, programmers, trajectory sensing, and firesets.

Mechanical Business Unit (MBU) Technology Overview

The Mechanical Business Unit will consist of 14 modules which will fabricate or procure all required product lines. This is a process-based approach for most mechanical technologies, complemented by generic product-based manufacturing departments, mechanical support laboratories, and engineering services as follows:

Mechanical Welding: Mechanical Welding is a process-based activity group providing welded mechanical hardware and welding operations in common support of factory operations. The in-place

consolidation will combine operations which currently exist in Welding Operations, Interim Reservoir Welding, Model Shop and Tool Room, and the Mechanical Welding Laboratory.

Sheet Metal and Mechanical Assembly: The sheet metal fabrication assembly area will provide common support for a range of mechanical and electromechanical products, and includes typical sheet metal processes as well as laser marking.

Electromechanical Assembly: Electromechanical Assembly will be restructured in a downsized and consolidated operation to provide support of stronglinks and other miniature assemblies which have design features that include miniature solenoids, ceramic electrical headers, miniature springs, friction reducing coatings and bearings, low resistance electrical contacts, magnetically coupled switching, and a host of other unique designs. Most miniature mechanisms require assembly in a Class 100 clean environment, utilizing clean benches within a class 100,000 clean room.

Heat Treating and Abrasive Blasting: The heat treat and abrasive blasting areas provide service for all mechanical product lines. Included in the relocation of the Heat Treat department is the replacement of a portion of the furnaces and support equipment which will not survive the relocation due to their poor condition. The structural integrity of the furnaces being replaced is very poor and modifications would be required to refurbish fire brick and heating elements and the equipment may not survive the relocation. Due to the large size of these furnaces and the criticality of this equipment as a unique capability, new furnaces will be procured and installed in the new location prior to excess of the old equipment.

Mechanical Machining: Mechanical machining and inspection will be a downsized and consolidated operation that will fabricate hardware through traditional and non-traditional means in sizes ranging from large case-type housings to miniature piece parts for assemblies. The machined hardware provided by this module will support requirements of all programs at KCP for both internal and external customers.

Reservoir Fabrication and Assembly: Reservoir production responsibility was transferred from the DOE's Rocky Flats Plant to the Kansas City Plant through the nonnuclear reconfiguration program. Because of special handling, cleaning and contamination considerations associated with reservoir production, KCP's reservoir facility contains most processes necessary to manufacture, test and inspect a wide variety of production reservoirs. SMRI implementation will not change the Reservoir facility.

TSD Products Manufacturing: TSD Products Manufacturing supports the secure transportation needs for the DOE Transportation Safeguards Division including refurbishment of existing trailers, original manufacture of the new design Safeguards Transporter Trailer (SGT) and multiple short-term special maintenance activities. The TSD manufacturing area will be consolidated by combining the secure trailer sheet metal area with the primary SGT assembly facility.

Mechanical Support Laboratories: Support laboratories for Mechanical Operations will continue to provide the current types of support, though in a smaller footprint through consolidation.

Plastics Molding & Filled Elastomers: This area supports injection, compression, and transfer molding of thermoset and thermoplastic compounds, and material preparation and compression molding of filled elastomeric products.

Cellular Silicone Production: The Cellular Silicone processing operations will not be consolidated with other operations for material incompatibility reasons. The activities associated with the production of

| cellular silicone products require three major processes: urea screening; silicone base and cellular silicone
| compounding; and cellular silicone molding, part processing, and product inspection.

| **Foam Products:** Foam Products is a process-based approach, which has combined equipment needed
| for fabrication of rigid polyurethane foams, filled elastomer foams and foam desiccant product lines.

| **Plastics Machining, Assembly & Inspection:** In the Plastics Machining, Assembly & Inspection
| module, the manufacturing and machining of all Special Plastics Case Assemblies and Subassemblies, Gas
| Getters, Composites, and all other plastic products and the related inspection of these products will be
| consolidated. This consolidation allows for some enhanced utilization of floor space and equipment.

| **Plating & Painting:** These two process modules provide custom metal finishing services to the entire
| plant. They are not undergoing consolidation as part of the SMRI project.

Engineered Materials Business Unit (EMBU) Technology Overview

| The engineered materials factory consists of four processing modules as follows:

| **Model Shop and Tool Room:** The Model Shop and Tool Room is a support organization that will
| provide prototype and evaluation hardware, tool and gage fabrication and maintenance, special grinding
| of cutting tools, and limited tool design in support of unique and short-cycle time needs of production
| operations.

| **Engineering Laboratories:** The Engineered Materials Business Unit contains several large laboratories.
| Except for the Nuclear Grade Steels Receiving and Inspection, and Environmental & Non-Destructive
| test labs, the Engineering Laboratories will remain unchanged by the SMRI project.

| **Engineering Services:** The Engineered Materials Business Unit provides document control, drafting,
| and other support services for the other business units. These functions are primarily office areas, and are
| not modified in the SMRI project.

| **Metrology:** Metrology provides calibration services to the plant and will not be modified under SMRI.

| **Support Operations Technology Overview**

| Support operations includes boilerhouses, waste management operations, patrol headquarters, stores
| (including enduring stockpile), maintenance, cafeteria, offices and other functions that are essential for
| plant operations. Included under this function is the physical plant separation work for walls and utilities
| and security guard support during construction. Also included is the construction and relocation of a
| downsized cafeteria. These functions, generally placed in the category of support, are common to plant
| operations and are not assigned to a specific factory.

| **Physical Plant Separation:** Maximum Foreseeable Fire Loss (MFL) rated separation between the DOE
| and GSA will be provided by construction of fire rated subdivision walls. Major air handling and utilities
| systems serving both DOE and GSA will be separated to allow for independent maintenance of these
| services on both sides of the separation line after the SMRI project is complete.

| **Stores:** New stores will occupy approximately 21 areas, down from the existing 70. Gages and fixtures,
| chemicals, and some of the production and non-production stores areas will remain in their current
| locations. Bulk materials and large production and non-production areas will be relocated and resized to

meet future stores requirements. This bulk storage area will be located in a high-roof, unexcavated area of the plant which is adjacent to a new high-rack storage area.

Enduring Stockpile: This project provides space for enduring stockpile inventory and to construct fire-rated storage facility enclosures to limit the Maximum Foreseeable Loss (MFL) in accordance with DOE dollar limits. Sites will be provided for a proposed short-term storage of DOE-managed Enduring Stockpile materials. Approximately 105,000 square feet of plant floor space within the new boundaries derived from the facility consolidations will be allocated for the storage of these materials. Thirteen plant areas will be dedicated to this purpose and will be upgraded in place to meet the enduring stockpile storage criteria.

Project Milestones:

FY 1999: A-E work initiated 1Q

FY 2000: Maintain schedules to complete construction by 2Q 2005

4. Details of Cost Estimate

(dollars in thousands)

	Current Estimate	Previous Estimate
Design Phase		
Preliminary and Final Design costs (Design Drawings and Specifications)	8,451	8,145
Design Management Costs (1.1% of TEC)	1,268	2,280
Project Management Costs (0.4% of TEC)	422	250
Total Design Costs (8.5% of TEC)	10,141	10,675
Construction Phase		
Buildings	46,381	47,855
Standard Equipment	32,210	35,373
Inspection, Design and Project Liaison, Testing, Checkout and Acceptance	3,440	3,270
Construction Management (5.4% of TEC)	6,477	2,370
Project Management (2.4% of TEC)	2,850	1,900
Total Construction Costs (76.5% of TEC)	91,358	90,768
Contingencies		
Design Phase (1.5% of TEC)	1,799	2,215
Construction Phase (13.6% of TEC)	16,202	18,842
Total Contingencies (15.0% of TEC)	18,001	21,057
Total, Line Item Costs (TEC) [b]	119,500	122,500

[b] The Conceptual Design Report was completed in March 1997. Escalation is calculated to the midpoint of each activity. The escalation rates used were provided by the Independent Cost Estimating Group dated January 1997. Overhead estimates were calculated at a factor of 14 percent for procurement and 85 percent for internal labor. Escalation rates were taken from the FY 1999 DOE escalation multiplier tables.

5. Method of Performance

Design and inspection will be performed under KCP negotiated architect-engineer contract. Construction will be accomplished either by fixed-price contract awarded after competitive proposals or by cost plus incentive fee contracts. All contracts will be administered by AlliedSignal.

6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 1998	FY 1999	FY 2000	FY 2001	Outyears	Total
Total project costs							
Total facility costs							
Design	0	0	3,156	931	4,922	2,931	11,940
Construction	0	0	6,569	17,208	19,607	64,176	107,560
Total facility costs (Federal and Non-Federal)	0	0	9,725	18,139	24,529	67,107	119,500
Other project costs							
Conceptual design cost	1,000	0	0	0	0	0	1,000
Other project-related costs	897	2,196	2,756	3,501	3,857	5,993	19,200
Total other project costs	1,897	2,196	2,756	3,501	3,857	5,993	20,200
Total Project Cost (TPC)	1,897	2,196	12,481	21,640	28,386	73,100	139,700

7. Related Annual Funding Requirements

(FY 2005 dollars in thousands)

	Current Estimate	Previous Estimate
Related annual costs (estimated life of project--30 years)		
Other costs	18,474	32,598
Total related annual costs (operating from FY 2005 through FY 2034)	18,474	32,598

99-D-128, Stockpile Management Restructuring Initiative—Pantex Plant, Amarillo, Texas

(Changes from FY 1999 Congressional Budget Request are denoted with a vertical line [|] in the left margin.)

Significant Changes

Since the submittal of the FY 1999 data sheet, two events have occurred, significantly altering the scope of this project. These were a reevaluation of the activity levels for the Weapons complex and the Congressionally mandated Independent External Assessment (IEA). The first resulted in the need for the Weapons Complex to not downsize as much as previously planned. The second recommended a reevaluation of the project that included enhancing operational flexibility for a potential increase in weapons work and moving routine relocation activities and smaller subprojects out of the project. The recommended reevaluation was performed and resulted in deleting eight subprojects and the Mortgage Reduction Initiative (MRI) from the project.

The MRI shuts down approximately 230 facilities putting them into Long Term Caretaker (LTC) status at an average cost of $43,000 per facility. The reevaluation determined that these small, routine, low cost efforts were more appropriately performed outside the line item project.

The reevaluation of the Small Components, NDE Radiography, Gas Analytical Laboratory, Weapons Staging, and the Laundry subprojects revealed that the need for enhancing operational flexibility, as recommended in the IEA, necessitated changes in the locations and/or scopes of these subprojects. In addition, all of these were determined to be independent, relatively low cost ($1,500,000 to $4,000,000), routine relocations that could be performed for less cost and in less time if performed outside the line item project.

The Metrology, Records Storage, and Maintenance Shops subprojects were reevaluated, and all were determined to be low cost ($2,600,000 to $4,000,000), routine relocations that could be performed for less cost and in less time if performed outside the line item project.

The reevaluation of the Mass Properties subproject revealed that the function, as pointed out in the IEA, could not be relocated as originally planned; so it has been rescoped to be relocated to a new location.

The reevaluation of the HE Formulation subproject revealed the need to delete the relocation of equipment from building 11-016; so that work and the placing of building 11-016 in LTC status were deleted from the project.

The reevaluation of the 35 Account subproject, which includes placing facilities vacated by the 35 Account relocation into LTC status, revealed that two buildings will still be required; so placing them into LTC status was deleted.

In addition, the burden rates, overhead rates, security guard costs, and Other Project Costs (OPC) were corrected. The OPC increased after completion of a detailed, resources and labor hours "bottom up" estimate.

As a result of the above changes, the Total Estimated Cost (TEC) had a net reduction of $30,100,000, the OPC had a net reduction of $1,262,000, the Total Project Cost had a net reduction of $31,362,000, and the completion of the project was reduced by two years.

1. Construction Schedule History

	Fiscal Quarter				Total Estimated Cost ($000)	Total Project Cost ($000)
	A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
FY 1999 Budget Request *(Preliminary Estimate)*	2Q 1999	2Q 2003 [a]	4Q 2000	4Q 2006	42,380	49,600
FY 2000 Budget Request *(Current Baseline Estimate)*	3Q 1999	4Q 2001 [a]	2Q 2000	4Q 2004	13,218	17,863

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
Design/Construction			
1999	1,108	662	627
2000	3,429	3,660	3,730
2001	4,985	5,200	2,092
2002	3,300	3,300	5,141
2003	286	286	1,518
2004	110	110	110

3. Project Description, Justification and Scope

The Pantex Plant Stockpile Management Restructuring Initiative (SMRI) Project will provide for the design and construction for various relocation and upgrades and for the shutdown of obsolete structures. The project will help to reduce the plant footprint by consolidating functions into fewer and more modern facilities.

The scope for this project has been established based upon the Department of Energy's (DOE) directed workload for the Pantex Plant. This directed workload is the weapons work Pantex is directed to do through Program Control Documents (PCDs), Retirement/Disposal Program Control Documents, the Quality Assurance Production Plan (QAPP), and other special written requests provided by DOE.

The technical baseline for this project has been broken up into three parts that are detailed below:

[a] Phased design and construction will be required to minimize impact to plant operations.

Relocation of High Explosive Formulation to 11-050

This portion of the SMRI project will remove existing High Explosive (HE) machining equipment from Building 11-050 following startup of HE machining operations in Building 12-121. Building 11-050 will be modified to receive the HE formulation related operations currently performed in Building 12-019 East and Building 12-017, and selected operations and equipment from Building 11-017. Following modifications to Building 11-050 the required equipment from these building will be relocated and the equipment put into operation in Building 11-050. Finally, Building 12-019 East will be placed into a long-term caretaker status. Equipment and support items will be procured and/or relocated as required and any items that cannot be successfully relocated will be replaced. This portion of the SMRI project will be designed to meet the applicable DOE and regulatory requirements in place at the start of Title I design.

Relocate Mass Properties

This portion of the SMRI project will relocate the Mass Properties function to Buildings 12-084 and 12-104 and will consist of modifications to the buildings to accept the mass properties operations from Building 12-060. Four existing pieces of equipment will be replaced by procuring two new, more technically advanced pieces of equipment. Equipment and support items will be procured and/or relocated as required and any items that cannot be successfully relocated will be replaced. This portion of the SMRI project will be designed to meet the applicable DOE and regulatory requirements in place at the start of Title I design.

Relocate 35 Account Materials

This portion of the SMRI project will relocate the 35 Account warehousing activities in Buildings 12-005A, 12-005B, 12-010, 12-009, and Ramp 12-R-010 into Building 12-118. The 35 Account activities include materials in contact with a weapon or weapon component during a weapon assembly, disassembly or test units. Typical materials include such items as epoxy resin, paint, dry air, rubber gloves and acetone. Equipment and support items will be procured and/or relocated as required and any items that cannot be successfully relocated will be replaced. This portion of the SMRI project will be designed to meet the applicable DOE and regulatory requirements in place at the start of Title I design. Buildings 12-005A, 12-005B, 12-010, and 12-R-010 will be placed into Long-term Caretaker status.

Project Milestones:

FY 1999: A-E Work Initiated	3Q
FY 2000: Construction Start	2Q

4. Details of Cost Estimate

	(dollars in thousands) Current Estimate	Previous Estimate
Design Phase		
Preliminary and Final Design costs (Design Drawings and Specifications)	1,210	2,740
Project Management costs (4.4% of TEC)	579	650
Total Design Costs (13.5% of TEC)	1,789	3,390
Construction Phase		
Improvements to Land	61	264
Buildings	4,298	11,555
Other Structures	510	6,745
Utilities	20	60
Standard Equipment	2,873	1,521
Removal Cost Less Salvage	35	825
Inspection, Design and Project Liaison, Testing, Checkout and Acceptance	146	385
Construction Management (5.8% of TEC)	773	414
Project Management (3.4% of TEC)	455	10,059
Total Construction Costs (69.4% of TEC)	9,171	31,828
Contingencies		
Design Phase (2.7% of TEC)	358	1,332
Construction Phase (14.3% of TEC)	1,900	5,830
Total Contingencies (17.1% of TEC)	2,258	7,162
Total, Line Item Costs (TEC) [b]	13,218	42,380

5. Method of Performance

The design services (Title I, II, and III) will be accomplished by an outside A-E firm and will be administered by the Operating Contractor (Mason and Hanger Corporation). Mason and Hanger Corporation will perform portions of the design for selected projects.

The construction services of this project will be performed by an outside construction contractor operating under a contract to be awarded on the basis of competitive bids. This contract will be administered by the Operating Contractor (Mason and Hanger Corporation).

Construction Management Services will be performed by the DOE Operating Contractor.

[b] Escalation rates taken from the FY 1999 DOE escalation multiplier tables. The previous estimate was based on the Independent Cost Reviews (ICR 6/97 and 8/97) of the Conceptual Design Report (Revision 1) and included security guard costs under project management. The current estimate is based on new burden rates and correctly includes security guard costs under construction management.

6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 1998	FY 1999	FY 2000	FY 2001	Outyears	Total
Total project costs							
Total facility costs							
Design	0	0	627	1,152	289	79	2,147
Construction	0	0	0	2,578	1,803	6,690	11,071
Total facility costs (Federal and Non-Federal)	0	0	627	3,730	2,092	6,769	13,218
Other project costs							
Conceptual design cost	768	0	0	0	0	0	768
NEPA documentation costs	297	51	60	40	33	72	553
Other ES&H costs	0	40	43	20	38	97	238
Other project-related costs	0	384	497	480	782	943	3,086
Total other project costs	1,065	475	600	540	853	1,112	4,645
Total Project Cost (TPC)	1,065	475	1,227	4,270	2,945	7,881	17,863

7. Related Annual Funding Requirements

(FY 2004 dollars in thousands)

	Current Estimate	Previous Estimate
Related annual costs (estimated life of project--30 years)		
Facility operating costs	355	1,036
Facility maintenance and repair costs	218	259
Programmatic operating expenses directly related to the facility	1,418	12,253
Capital equipment not related to construction but related to the programmatic effort in the facility	350	1,860
Utility costs	106	367
Total related annual costs (operating from FY 2004 through FY 2033)	2,447	15,775

99-D-132, Nuclear Materials Safeguards and Security Upgrades Project, Los Alamos National Laboratory, New Mexico

(Changes from FY 1999 Congressional Budget Request are denoted with a vertical line [|] in the left margin.)

Significant Changes

The National Academy of Engineering (NAE) assessment has been completed, project start will be delayed until 2nd quarter of FY 1999, with the project funding profiles adjusted accordingly.

1. Construction Schedule History

	Fiscal Quarter				Total Estimated Cost ($000)	Total Project Cost ($000)
	A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
FY 1999 Budget Request *(Preliminary Estimate)*	1Q 1999	1Q 2001	3Q 2000	3Q 2004	60,746 a	70,920
FY 2000 Budget Request *(Current Baseline Estimate)*	2Q 1999	1Q 2001	3Q 2000	3Q 2004	60,746 [a]	70,920

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
Design/Construction			
1999	9,700	9,000	8,000
2000	11,300	10,288	8,742
2001	18,000	16,962	18,000
2002	11,800	14,278	15,340
2003	9,946	6,646	6,700
2004	0	3,572	3,964

[a] TEC and Financial Schedule reflects Phase 1 only. Phase 2 cost estimate and funding profile will be completed as part of future conceptual design efforts.

3. Project Description, Justification and Scope

The Nuclear Material Safeguard and Security Project (NMSSUP) replaces the existing Los Alamos National Laboratory-wide security system, addresses Special Nuclear Material (SNM) facility requirements, and addresses malevolent vehicle threats at key nuclear facilities. Assessments of the LANL safeguards and security system have identified numerous system deficiencies due to aging equipment and outdated technologies. The NMSSUP will provide a reliable safeguards and security system to ensure the protection and control of SNM, classified matter, and Departmental property supporting current missions at LANL.

The NMSSUP is broken into two phases to accomplish the project goals. The currently requested Phase 1 will provide for the replacement of safeguard and security control systems (computers/communications links, etc.) and modification of related facilities. A planned Phase 2 may replace or build perimeter detection systems and address the threat of public traffic on uncontrolled roads near key nuclear facilities.

This project is to provide necessary upgrades to the existing Laboratory-wide security systems to bring them into compliance with DOE Order 5632.1C and to address deficiencies cited in the pending Los Alamos National Laboratory (LANL) Site Safeguards and Security Plan (SSSP). The systems being upgraded have been in operation for up to 14 years, have exceeded their useful design life, and are in need of replacement. Funding is required to continue safe, secure, economical operation of the Laboratory.

The Phases of the security system to be upgraded or replaced may include the following:

Phase 1

A new security system will be installed to include multiple host computers, operator interface consoles, upgrades to existing facilities, and a dedicated communications system. Existing facilities will be upgraded to serve as a Central Alarm Station (CAS) and Secondary Alarm Station (SAS) which will house the host computers and security monitoring personnel. To support the transition of the TA-55 local assessment facility for operation as the new CAS, an un-staffed assessment console room at TA-64-1 will be provided. Additional detail is provided below.

Control System

The project will replace the existing Laboratory security system, Basic Rapid Alarm Security System (BRASS), computers and software with Argus, a security system provided by Lawrence Livermore National Laboratory (LLNL). The CAS and SAS will be reconfigured, and minor remodeling of the badging office will be performed to accommodate Argus enrollment stations.

Facilities

CAS (TA-55-142) will be upgraded to house the host system computer and new operator consoles. A small utility building will be constructed to accommodate facility support equipment, and provide space for supervisory personnel.

SAS (TA-3-440) will be upgraded to house the host system computer and new operator consoles. A small utility building will be constructed to accommodate facility support equipment. Limited Area

fencing and barricades will be installed to enclose the SAS to provide proper security. This facility will also house the training console to support the Argus system.

TA-64-1 will be upgraded to house a new un-staffed assessment console to support the transition of the TA-55-142 local assessment room for operation as the CAS. This area will continue to house and support the existing LANL fire protection control and alarm system on the existing BRASS.

Communications System

A new fiber optic communications network will replace the existing telephone circuits connecting the security control computers to the field concentrators. Phase 1 will install the portion of the communications system that connects the new host computers to the security concentrators at LANL's Category I SNM facilities TA-55 and TA-18. In addition, the communications circuits needed to connect the computers in the CAS, SAS, and the un-stalled assessment console room will be installed in Phase 1. Because Phase 1 involves installing fiber-optic bundles coming out from the CAS and SAS, those bundles will be sized with adequate capacity in Phase 1 to accommodate the number of fibers needed to support Phase 2.

Planned Phase 2

Category 1 SNM Facilities and NMSM Facilities

Includes protection of the following Category 1 SNM Facilities, such as:

- TA-55, Plutonium Facility.
- TA-18, Los Alamos Critical Experiments Facility (LACEF).

Phase 2 may also evaluate requirements for controlling proximity of public traffic to TA-3 facilities and modify traffic profiles and patterns if needed and address SSSP requirements as necessary to reduce overall security risks at LANL.

Project Milestones

FY 1999:	Start design and procurement activities for the control system, facility modifications, and communication system	1Q
FY 2000:	Start construction of facility modifications, control and communications system	3Q

4. Details of Cost Estimate

(dollars in thousands)

	Current Estimate	Previous Estimate
Design Phase		
Preliminary and Final Design costs (Design Drawings and Specifications)	4,930	4,930
Design Management costs (1.9% of TEC)	1,200	1,200
Project Management costs (1.3% of TEC)	800	800
Total Design Costs (11.4% of TEC)	6,930	6,930
Construction Phase		
Improvements to Land	5,625	5,625
Buildings	6,964	6,964
Special Equipment	21,540	21,540
Inspection, Design and Project Liaison, Testing, Checkout and Acceptance	4,290	4,290
Construction Management (3.5% of TEC)	2,136	2,136
Project Management (8.7% of TEC)	5,261	5,261
Total Construction Costs (75.4% of TEC)	45,816	45,816
Contingencies		
Design Phase (1.7% of TEC)	1,050	1,050
Construction Phase (11.4% of TEC)	6,950	6,950
Total Contingencies (13.2% of TEC)	8,000	8,000
Total, Line Item Costs (TEC) [b]	60,746	60,746

5. Method of Performance

Engineering, design and inspection will be accomplished under a negotiated architect-engineer (A-E) contract. Construction and procurement will be accomplished by fixed-price contracts awarded on the basis of competitive bidding. The computer system will be procured and installed through a cooperative agreement with Lawrence Livermore National Laboratory.

[b] Escalation rates taken from the FY 1999 DOE escalation multiplier tables. TEC and Financial Schedule reflect Phase 1 only. Phase 2 cost estimate and funding profile will be completed as part of the future conceptual design efforts.

6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 1998	FY 1999	FY 2000	FY 2001	Outyears	Total
Total project costs							
Total facility costs							
Design	0	0	2,342	2,438	2,640	1,000	8,420
Construction	0	0	5,658	6,304	15,360	25,004	52,326
Total facility costs (Federal and Non-Federal)	0	0	8,000	8,742	18,000	26,004	60,746
Other project costs							
Conceptual design cost	575	500	0	0	0	0	1,075 [c]
NEPA documentation costs	50	0	0	0	0	0	50
Other ES&H costs	0	5	50	75	110	840	1,080
Other project-related costs	950	295	750	725	1,090	4,159	7,969
Total other project costs	1,575	800	800	800	1,200	4,999	10,174
Total Project Cost (TPC)	1,575	800	8,800	9,542	19,200	31,003	70,920

7. Related Annual Funding Requirements

(FY 2004 dollars in thousands)

	Current Estimate	Previous Estimate
Related annual costs (estimated life of project--20 years)		
Facility operating costs	1,874	1,874
Facility maintenance and repair costs	902	902
Utility costs	59	59
Total related annual costs (operating from FY 2004 through FY 2023)	2,835	2,835

[c] Conceptual design costs over Phase 1 activities only. Phase 2 cost estimate and funding profile will be completed as part of the future conceptual design efforts.

98-D-123 Stockpile Management Restructuring Initiative—Tritium Facility Modernization and Consolidation, Savannah River Plant, Aiken, South Carolina

(Changes from FY 1999 Congressional Budget Request are denoted with a vertical line [|] in the left margin.)

Significant Changes

Physical completion date has been adjusted due to delayed start of design on most processes in Building 233-H.

1. Construction Schedule History

	Fiscal Quarter				Total Estimated Cost ($000)	Total Project Cost ($000)
	A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
FY 1998 Budget Request *(Preliminary Estimate)*	2Q 1998	1Q 2000	1Q 1999	2Q 2002	68,790	85,540
FY 1999 Budget Request [a]	2Q 1998	2Q 2000	3Q 1998	3Q 2004	98,400	122,000
FY 2000 Budget Request [b] *(Current Baseline Estimate)*	2Q 1998	3Q 2000	3Q 1998	4Q 2004	98,400	122,000

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
Design/Construction			
1998	11,000	11,000	5,092
1999	27,500	27,500	18,108
2000	21,800	21,800	25,700
2001	24,200	24,200	32,400
2002	10,800	10,800	14,000
2003	2,200	2,200	2,200
2004	900	900	900

[a] Reflected changes from including scope and associated funding to process tritium containing gases from the Commercial Light Water Reactor (CLWR), which was originally included in the Tritium Extraction Facility (Line Item 98-D-125).

[b] Reflects changes in schedule due to delayed start of design on most processes in Building 233-H.

3. Project Description, Justification and Scope

In 1994, production operations were curtailed at three of the seven weapons production facilities (Mound in Ohio, Pinellas in Florida, and Rocky Flats in Colorado). Their production responsibilities were transferred to two of the remaining four production plants (Kansas City Plant and Savannah River Site (SRS) and to two of the national laboratories (Los Alamos National Laboratory (LANL) and Sandia National Laboratory, New Mexico). After the closure of these production operations, studies were continued to determine the optimum size and configuration of the nuclear weapons complex. It was recognized that the remaining four production facilities provided excess capacity than that required to support the projected stockpile, and that further closure and consolidation or significant downsizing of operations was necessary. Studies were begun in late 1994 to address whether the reduced stockpile levels necessitated further plant closures and consolidation/collocation at the weapons laboratories or supported the downsizing of operations at the existing production plants. These studies were used to assess all reasonable alternatives which required little or no construction of new facilities. The result of these in-depth programmatic assessments culminated in the development and approval of the Justification of Mission Need document and the Critical Decision I authorization for the Stockpile Management Restructuring Initiative (SMRI) on April 2, 1996.

The SMRI will support the implementation of Departmental decisions related to production facility downsizing or relocation of missions consistent with the Stockpile Stewardship and Management (SSM) Programmatic Environmental Impact Statement (PEIS) and the Tritium Supply and Recycling PEIS Records of Decision (ROD). The preferred alternative for restructuring the stockpile management complex was announced by the Secretary of Energy on February 28, 1996. The Secretary of Energy approved a ROD for the Tritium Supply and Recycling PEIS on December 5, 1995.

The goal of the Stockpile Management Program, as implemented by the SMRI, is to attain the following objectives: (1) fully support the evaluation, enhanced surveillance, maintenance, and repair of the enduring stockpile; (2) provide flexibility to respond to new requirements or to achieve further reductions in the stockpile size; (3) maintain and improve (where necessary) the manufacturing technology necessary to fully support the stockpile; and (4) achieve significant reductions in operating costs for the complex.

The SMRI involves (1) the downsizing of weapons assembly/disassembly and high explosives missions at the Pantex Plant; (2) downsizing nonnuclear component manufacturing at the Kansas City Plant; (3) downsizing weapons secondary and case fabrication at the Oak Ridge Y-12 Plant; and (4) consolidation of existing tritium operations at the SRS.

No new facilities are being proposed for implementing the SMRI. Existing facilities will be utilized to the maximum extent possible. All existing facilities that have been identified for utilization under each site specific recommended alternative will be repaired, upgraded, and/or modified to meet current environment, safety, and health requirements. In addition, they will be configured to maximize effectiveness and efficiency in support of the site-specific downsizing and/or consolidation management capability requirements for the smaller stockpile.

The Tritium Facility Modernization and Consolidation work package will relocate several process systems and equipment and/or process functions from Buildings 232-H into existing buildings within the Tritium Facility. High and Moderate hazard processes will be relocated into Building 233-H.

Low Hazard processes will be relocated to the North end of Building 234-H. The Building 233-H and 234-H service support systems will be upgraded to accommodate the additional loads.

The consolidation of Tritium processing activities into Buildings 233-H, 249-H, and the newer portion of 234-H will improve the safety of operations, reduce environmental releases, improve productivity, and significantly reduce future operating costs.

The consolidation of equipment into fewer operating buildings will allow for the reduction of maintenance, operations, and support staffing. The closure of 232-H will further reduce the Defense Programs operating budget for the Savannah River Site (SRS). It is estimated that financial pay back for this project can be realized in approximately four years.

The scope of work also includes work that was transferred from the Tritium Extraction Facility, Line Item 98-D-125. These are increases in capacities and flows in the primary separation system, process stripper/tritium recovery system, glovebox stripper/tritium recovery system. Also added is an isotope separation process. These additions will allow the Consolidation project to handle additional process and waste gases from any new tritium source.

Project Milestones

FY 1999: Physical construction start

FY 2000: A-E Work Completed 3Q

4. Details of Cost Estimate

(dollars in thousands)

	Current Estimate	Previous Estimate
Design Phase		
Preliminary and Final Design costs (Design Drawings and Specifications)	13,370	13,370
Design Management Costs (0.4% of TEC)	413	413
Project Management Costs (1.0% of TEC)	987	987
Total Design Costs (15.0% of TEC)	14,770	14,770
Construction Phase		
Improvements to Land	100	100
Buildings [c]	5,300	5,300
Special Equipment	36,345	36,345
Standard Equipment	3,080	3,080
Removal Cost Less Salvage	1,645	1,645
Inspection, Design and Project Liaison, Testing, Checkout and Acceptance	7,034	7,034
Construction Management (2.0% of TEC)	1,995	1,995
Project Management (2.4% of TEC)	2,367	2,367
Total Construction Costs (58.8% of TEC)	57,866	57,866
Contingencies		
Design Phase (5.3% of TEC)	5,240	5,240
Construction Phase (20.9% of TEC)	20,524	20,524
Total Contingencies (26.2% of TEC)	25,764	25,764
Total, Line Item Costs (TEC) [d]	98,400	98,400

5. Method of Performance

The Management and Operating (M&O) contractor, Westinghouse Savannah River Company, will have overall project performance responsibility. The M&O contractor will accomplish design, construction and procurement, utilizing fixed-price subcontracts awarded on the basis of competitive bidding to the extent feasible.

[c] This amount includes improvements to land, special equipment, other structures and utilities with more exact breakout to be determined.

[d] Escalation rates taken from the FY 1998 DOE escalation multiplier tables.

6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 1998	FY 1999	FY 2000	FY 2001	Outyears	Total
Total project costs							
Total facility costs							
Design	0	5,092	11,108	3,810	0	0	20,010
Construction	0	0	7,000	21,890	32,400	17,100	78,390
Total facility costs (Federal and Non-Federal)	0	5,092	18,108	25,700	32,400	17,100	98,400
Other project costs							
R&D necessary to complete construction	400	400	0	0	0	0	800
Conceptual design cost	300	0	0	0	0	0	300
Decontamination and Decommissioning (D&D)	0	200	0	0	0	0	200
NEPA documentation costs	0	30	0	0	0	0	30
Other ES&H costs	0	10	80	130	190	400	810
Other project-related costs	800	2,760	2,220	2,570	4,010	9,100	21,460
Total other project costs	1,500	3,400	2,300	2,700	4,200	9,500	23,600
Total Project Cost (TPC)	1,500	8,492	20,408	28,400	36,600	26,600	122,000

7. Related Annual Funding Requirements

(FY 2004 dollars in thousands)

	Current Estimate	Previous Estimate
Related annual costs (estimated life of project--30 years)		
Facility operating costs	330	330
Facility maintenance and repair costs	440	440
Programmatic operating expenses directly related to the facility	1,100	1,100
Capital equipment not related to construction but related to the programmatic effort in the facility	30	30
GPP or other construction related to the programmatic effort in the facility	10	10
Utility costs	170	170
Total related annual costs (operating from FY 2004 through FY 2033)	2,080	2,080

98-D-124, Stockpile Management Restructuring Initiative— Y-12 Consolidation, Y-12 Plant, Oak Ridge, Tennessee

(Changes from FY 1999 Congressional Budget Request are denoted with a vertical line [|] in the left margin.)

Significant Changes

The original scope of 98-D-124, Stockpile Management Restructuring Initiative--Y-12 Consolidation, was based on the assumed activity levels for the weapons complex evaluated by the Programmatic Environmental Impact Statement (PEIS) and the Record of Decision (ROD). To see if excessive downsizing or impact to meeting mission requirements may occur, a Y-12-specific evaluation, the Y-12 Capacity Study, was begun in 1997, and the project scope was also evaluated against the Nuclear Weapons Production and Planning Directive (P&PD) 99-0 and the Albuquerque Workload Planning Guidance (AWLPG) 99-0 (U). The completed studies revealed that the initial project scope, if completed, would downsize the Y-12 Plant to a point that would impact the expected mission requirements. Consequently, the project scope has been reduced with the following changes:

- Building 9201-5W will be returned to active status rather than placed in Cold Stand-by.
- The existing Special Material Purification Facility will be restarted rather than install a new Special Material Pilot Plant Facility in Building 9805-1.
- Building 9204-2 will remain in active status and the following subprojects will be deleted: Lithium Equipment Relocation to Building 9204-2E; and Lithium Equipment Relocation to Building 9998 G3. The Ceramic Machining Operations, with appropriate enclosure and ventilation, will be relocated to Building 9204-2 instead of Building 9998 G3.
- A work package has been added to refurbish two Induction Casters in Building 9998.
- All natural phenomena upgrades have been deleted from the project.
- The scope changes reduce the TEC from $42,500,000 to $24,800,000.
- The OPC has been reduced from $10,300,000 to $8,400,000 due to reductions in the need for safety documentation resulting from not relocating equipment to the basement of Building 9204-2E and Building 9998, G3.

1. Construction Schedule History

	Fiscal Quarter				Total Estimated Cost ($000)	Total Project Cost ($000)
	A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
FY 1998 Budget Request *(Preliminary Estimate)*	1Q 1998	2Q 2000	2Q 1999	4Q 2002	42,500	52,800
FY 1999 Budget Request	1Q 1998	2Q 2000	2Q 1999	4Q 2002	42,500	52,800
FY 2000 Budget Request *(Current Baseline Estimate)*	4Q 1998	4Q 2001	2Q 1999	4Q 2002	24,800	33,200

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
Design/Construction			
1998	6,450	6,450	8
1999	10,700	10,700	4,192
2000	3,150	3,150	10,600
2001	4,500	4,500	8,100
2002	0	0	1,900

3. Project Description, Justification and Scope

In 1994, production operations were curtailed at three of the seven weapons production facilities (Mound in Ohio, Pinellas in Florida, and Rocky Flats in Colorado). Their production responsibilities were transferred to two of the remaining four production plants (Kansas City Plant and Savannah River Site (SRS)) and to two of the national laboratories (Los Alamos National Laboratory (LANL) and Sandia National Laboratories, New Mexico). After the closure of these production operations, studies were continued to determine the optimum size and configuration of the nuclear weapons complex. It was recognized that the remaining four production facilities provided excess capacity than that required to support the projected stockpile, and that further closure and consolidation or significant downsizing of operations was necessary. Studies were begun in late 1994 to address whether the reduced stockpile levels necessitated further plant closures and consolidation/collocation at the weapons laboratories or supported the downsizing of operations at the existing production plants. These studies were used to assess all reasonable alternatives which required little or no construction of new facilities. The result of the programmatic assessments of these alternatives studies culminated in the initial development of the Stockpile Management Restructuring Initiative (SMRI). In 1995 the Department formally evaluated production facility downsizing and relocation of missions in the Stockpile Stewardship and Management (SSM) Programmatic Environmental Impact Statement (PEIS). The preferred alternative for restructuring the stockpile management complex was approved by the Secretary of Energy on December 19, 1996.

The goal of the Stockpile Management Program is to attain the following objectives: (1) fully support the evaluation, enhanced surveillance, maintenance, and repair of the enduring stockpile; (2) provide flexibility to respond to new requirements or to achieve further reductions in the stockpile size; (3) maintain and improve (where necessary) the manufacturing technology necessary to fully support the stockpile; and (4) achieve significant reductions in operating costs for the complex.

The SMRI involves (1) the downsizing of weapons assembly/disassembly and high explosives missions at the Pantex Plant; (2) downsizing nonnuclear component manufacturing at the Kansas City Plant; (3) downsizing weapons secondary and case fabrication at the Oak Ridge Y-12 Plant; and (4) consolidation of existing tritium operations at the SRS.

The original scope of 98-D-124, Stockpile Management Restructuring Initiative--Y-12 Consolidation, was based on the assumed activity levels for the weapons complex evaluated by the Programmatic Environmental Impact Statement (PEIS) and the Record of Decision (ROD). To see if excessive downsizing or impact to meeting mission requirements may occur, a Y-12-specific evaluation, the Y-12 Capacity Study, was begun in 1997, and the project scope was also evaluated against the Nuclear Weapons Production and Planning Directive (P&PD) 99-0 and the Albuquerque Workload Planning Guidance (AWLPG) 99-0 (U). The completed studies revealed that the initial project scope, if completed, would downsize the Y-12 Plant to a point that would impact the expected mission requirements. Therefore, the project scope was reduced.

No new facilities are being proposed for implementing the SMRI. Existing facilities will be utilized to the maximum extent possible. All existing facilities that have been identified for utilization under each site-specific recommended alternative will be repaired, upgraded, and/or modified to meet current environment, safety, and health requirements. In addition, they will be configured to maximize effectiveness and efficiency in support of the site-specific downsizing and/or consolidation management capability requirements for the smaller stockpile.

The consolidation of the Canned Subassemblies mission at Y-12 will reduce the existing Defense Programs (DP) manufacturing footprint to approximately 1,200,000 square feet of active production space, a reduction of 50 percent. The consolidation work will take place in Buildings 9201-5N, 9204-2E, 9204-2, 9201-5W, 9212, and the 9215/9998 complex and peripheral support buildings. The facilities work required includes (1) capital equipment relocation; (2) capital equipment procurement and installation; and (3) reactivation of 9201-5W.

The primary purpose of this project is to complete the overall downsizing of the Y-12 manufacturing footprint. This project is part of a long range consolidation plan that began in 1992. Along with previously completed projects and other currently funded consolidation projects, SMRI completes the consolidation of manufacturing operations into a smaller footprint area. After completing process consolidation activities at Y-12 and the subsequent safe and compliant shut down of excess facilities, an annual savings of $10 million to $12 million dollars has been projected.

This Y-12 downsizing will consolidate secondary and case manufacturing processes into a significantly smaller production footprint.

The activities associated with the project centralizes the DP production functions in the western area of the Y-12 Plant. The subprojects will consist of the following tasks:

- # Relocation and/or hook-up of several machine tools to Building 9215 M-wing for the Enriched Uranium machining function.
- # Placing Building 9201-5W Machine Shop in active status to meet the current projected workload.
- # Providing a depleted uranium sawing operation, and a furnace for dismantled weapon material consolidation in Building 9212 A-2 wing.
- # Refurbish casting furnaces (2) in Building 9998.
- # Relocating Ceramic Machining equipment to Building 9204-2 Area and providing enclosures and ventilation.
- # Restart the existing Special Material Purification Facility in Building 9404-11.

Project Milestones:

FY 1999: Physical construction start 2Q

FY 2000: Maintain schedules to complete construction by 4Q 2004

4. Details of Cost Estimate

(dollars in thousands)

	Current Estimate	Previous Estimate
Design Phase		
Preliminary and Final Design costs (Design Drawings and Specifications - $1,055)	1,810	4,200
Project Management Costs (1.6% of TEC)	390	300
Total Design Costs (8.9% of TEC)	2,200	4,500
Construction Phase		
Buildings	3,270	0
Special Equipment	13,540	28,040
Inspection, Design and Project Liaison, Testing, Checkout and Acceptance	240	1,680
Construction Management (0.9% of TEC)	230	0
Project Management (2.9% of TEC)	710	1,200
Total Construction Costs (72.5% of TEC)	17,990	30,920
Contingencies		
Design Phase (1.7% of TEC)	430	580
Construction Phase (16.8% of TEC)	4,180	6,500
Total Contingencies (18.6% of TEC)	4,610	7,080
Total, Line Item Costs (TEC) [a]	24,800	42,500

[a] Escalation rates taken from the FY 1998 DOE escalation multiplier tables.

5. Method of Performance

Design and inspection will be performed by the Management and Operating (M&O) Contractor. Construction shall be accomplished by MK-Ferguson direct-hire forces with some fixed-price contractor support. M&O Contractor personnel will perform construction support and plant support activities in support of the line item.

6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 1998	FY 1999	FY 2000	FY 2001	Outyears	Total
Total project costs							
Total facility costs							
Design	0	3	1,557	865	205	0	2,630
Construction	0	5	2,635	9,735	7,895	1,900	22,170
Total facility costs (Federal and Non-Federal)	0	8	4,192	10,600	8,100	1,900	24,800
Other project costs							
Conceptual design cost	1,500	0	0	0	0	0	1,500
Other project-related costs	0	200	1,500	1,100	1,780	2,320	6,900
Total other project costs	1,500	200	1,500	1,100	1,780	2,320	8,400
Total Project Cost (TPC)	1,500	208	5,692	11,700	9,880	4,220	33,200

7. Related Annual Funding Requirements

(FY 2002 dollars in thousands)

	Current Estimate	Previous Estimate
Related annual costs (estimated life of project--20 years)		
Facility operating costs	38,400	129,240
Facility maintenance and repair costs	1,000	13,452
Total related annual costs (operating from FY 2002 through FY 2021)	39,400	142,692

98-D-125 Tritium Extraction Facility, Savannah River Plant, Aiken, South Carolina

(Changes from FY 1998 Congressional Budget Request are denoted with a vertical line [|] in the left margin.)

Significant Changes

The funding profile shown on this Data Sheet is based on completion of Conceptual Design, and reflects current programmatic direction resulting from the Secretary of Energy's December 1998 decision that the Commercial Light Water Reactor (CLWR) will be the primary new source for production of tritium. A project rebaselining will be completed by March 1999 to fully assess and document baseline changes resulting from the technology selection and completion of Preliminary Design.

1. Construction Schedule History

	Fiscal Quarter				Total Estimated Cost ($000)	Total Project Cost ($000)
	A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
FY 1998 Budget Request *(Preliminary Estimate)*	1Q 1998	4Q 2002	1Q 1999	3Q 2005	TBD	TBD
FY 1999 Budget Request	[a]	a	a	a	a	a
FY 2000 Budget Request *(Current Baseline Estimate)*	1Q 1998	3Q 2001	1Q 2000	4Q 2004 [b]	285,650	390,650

[a] The FY 1999 budget request for the Tritium Supply Program was $157,000,000 in operating funds to pursue the tritium option selected by the Department in December 1998. No capital funding was requested. Congress appropriated $167,000,000 (operating). To fund necessary TEF construction activities in FY 1999, the Department requested $6,00,000 of the $167,000,000 be reprogrammed to capital funds. Approval of the reprogramming was granted January 1999.

[b] Final system turnover to integrated startup testing.

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
Design/Construction			
1998	9,650	9,650	6,911
1999	6,000	6,000	8,500
2000	33,000	33,000	32,000
2001	51,000	51,000	49,000
2002	54,000	54,000	53,000
2003	58,000	58,000	58,000
2004	37,000	37,000	38,000
2005	25,000	25,000	26,000
2006	12,000	12,000	14,239

3. Project Description, Justification and Scope

Tritium is a radioactive isotope of hydrogen used in all of the Nation's nuclear weapons. Without tritium, nuclear weapons will not work as designed. At present, no tritium is produced by the U.S. for the nuclear weapons stockpile. Radioactive decay depletes the available tritium by approximately 5.5% each year. In order for these weapons to operate as designed, tritium must be periodically replaced. Although tritium has not been produced by the U.S. for the stockpile since the shutdown of the last production reactor in 1988, tritium requirements have been met through reuse of tritium recovered from dismantled weapons. In order to maintain the START I force structure and five year reserve approved by the President in the 1996 Nuclear Weapons Stockpile Memorandum, a new production capability should come on line about 2005. To meet this date, site preparation and construction of the Tritium Extraction Facility (TEF) must begin in FY 2000. As part of the dual track production strategy, stated in the Record of Decision for the Tritium Supply and Recycling Final Programmatic Environmental Impact Statement, issued on December 5, 1995, the CLWR TEF shall be constructed at the Savannah River Site. The CLWR TEF shall provide the capability to receive and extract gases containing tritium from CLWR Tritium Producing Burnable Absorber Rods (TPBAR), or other targets of similar design. The TEF will provide shielded remote TPBAR handling for the extraction process, clean-up systems to reduce environmental impact from normal processing and accidental releases, and delivery of extracted gases containing tritium to the Tritium Recycle Facility for further processing.

The TEF will consist of a concrete industrial facility constructed partly below grade. The facility is divided into two major areas: (1) a 15,500 square foot remote handling area (RHA) and (2) a 26,500 square foot tritium processing building. The tritium processing building will be entirely above-ground; the floor of the RHA will be below grade. Major processes and operation systems included within the TEF will be: (1) the Receiving, Handling, and Storage System that will support all functions related the receipt, handling, preparation, and storage of incoming TPBAR and outgoing radioactive waste materials; (2) the Tritium Extraction System that will remove tritium and other gases from the TPBARs, remove contaminates from the gas stream, and store the tritium/helium mixture; (3) the Tritium/Product Process Systems that will separate and purify process gases from the irradiated TPBARs; (4) the Tritium Analysis and Accountability Systems that will support monitoring and tritium accountability; (5) the Solid Waste Management System that will receive solid waste generated by TEF for management and storage prior to disposal in the E-Area vaults; and (6) the Heating, Ventilation, and Air Conditioning System that would provide and distribute conditioned supply air to the underground RHA and the above ground tritium processing area and also discharge exhaust air to the environment via a 100-foot stack.

With CLWR as a basis, the TEF will provide steady-state production capability to the Tritium Recycle Facility (Building 233-H) of as much as 3Kg of tritium per year, if needed. Final purification of gases containing tritium shall be performed in the augmented process equipment located in the Tritium Recycle Facility.

The TEF shall have an operational life span of at least 40 years, minimize radiological and chemical releases to the environment; and minimize waste generation. The TEF security requirements shall be such that TEF is designated as an exclusion area and tritium processing facilities are to be located above ground.

Project Milestones

As baselined, the TEF will be dependent on the Tritium Modernization and Consolidation Project. With this project being completed during 3rd Quarter FY 2004, the final tritium systems will be available for processing extraction gases to ensure weapons stockpile requirements will be met in CY 2005.

FY 1998: Initiation of Preliminary Design

Completion of Preliminary Design

FY 1999: CD 2B Approval to Begin Final Design

Initiation of Final Design

CD-3 Approval to Begin Construction

FY 2000: Initiation of Site Preparation

FY 2001: Completion of Final Design

Completion of Site Preparation

Initiation of Facility Construction

FY 2004 Completion of Facility Construction (Final system turnover to integrated system testing)

FY 2005: Initiation of Integrated System Testing with Tritium

| FY 2006: Project Completion

| CD-4 – Start of Facility Operations

4. Details of Cost Estimate

(dollars in thousands)

	Current Estimate	Previous Estimate
Design Phase		
Preliminary and Final Design costs (Design Drawings and Specifications)	33,100	[c]
Design Management Costs (0.6% of TEC)	1,649	
Project Management Costs (1.6% of TEC)	4,520	
Total Design Costs (13.7% of TEC)	39,269	
Construction Phase		
Improvements to Land	3,082	
Buildings	125,508	
Special Equipment	14,212	
Standard Equipment	1,487	
Major Computer Items	6,047	
Inspection, Design and Project Liaison, Testing, Checkout and Acceptance	8,348	
Construction Management (5.5% of TEC)	15,764	
Project Management (2.5% of TEC)	7,280	
Total Construction Costs (63.6% of TEC)	181,728	
Contingencies		
Design Phase (10.2% of TEC)	29,053	
Construction Phase (12.5% of TEC)	35,600	
Total Contingencies (22.7% of TEC)	64,653	
Total, Line Item Costs (TEC)	285,650	

General and administrative overhead rates were calculated at a factor of 5% for TEC and 28% for OPC.

5. Method of Performance

Savannah River Site M&O Contractor (WSRC) will be responsible for the design, construction, inspection and commissioning of the TEF to be built at the Savannah River Site. All conceptual work has been completed by site forces. Preliminary Design has been completed by direct site forces. Final Design will be performed by site forces or by a subcontractor to WSRC. Based on competitive bid process, a

[c] This is the initial estimate. The FY 1998 data sheet requested design funds only and did not provide a breakdown of project costs.

general construction subcontractor will be selected to perform construction and start up activities through non-radioactive gas testing. Final testing with radioactive gases will be done by site forces.

6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 1999	FY 2000	FY 2001	FY 2002	Outyears	Total
Total project costs							
Total facility Costs							
Design	9,650	6,000	26,000	1,200	1,100	10,953	54,903
Construction	0	0	7,000	49,800	52,900	121,047	230,747
Total facility costs (Federal and Non-Federal)	9,650	6,000	33,000	51,000	54,000	132,000	285,650
Other project costs							
Conceptual design cost	3,541	0	0	0	0	0	3,541
NEPA documentation costs	1,858	0	0	0	0	0	1,858
Other project-related costs	5,601	6,000	3,000	5,000	12,000	68,000	99,601
Total other project costs	11,000	6,000	3,000	5,000	12,000	68,000	105,000
Total Project Cost (TPC)	20,650	12,000	36,000	56,000	66,000	200,000	390,650

7. Related Annual Funding Requirements

(FY 2005 dollars in thousands)

	Current Estimate	Previous Estimate
Related annual costs (estimated life of project--40 years)		
Facility operating costs	1,550	[d]
Facility maintenance and repair costs	2,500	
Programmatic operating expenses directly related to the facility	6,800	
Capital equipment not related to construction but related to the programmatic effort in the facility	700	
GPP or other construction related to the programmatic effort in the facility	400	
Utility costs	950	
Total related annual costs (operating from 2005 through 2044)	12,900	

[d] Initial estimate. The FY 1998 data sheet requested design funds only and did not include annual funding requirements.

98-D-126, Accelerator Production of Tritium, Various Locations

(Changes from FY 1998 Congressional Budget Request are denoted with a vertical line [|] in the left margin.)

Significant Changes

In December, 1998 the Department selected the Commercial Light Water Reactor (CLWR) to serve as the primary source of tritium with APT to be developed as a backup capability. As backup, a development and demonstration program and preliminary design of the APT plant will be completed. Capital funding is necessary in FY 2000 to continue preliminary design of the APT plant. Detailed planning for APT as backup is underway. This budget request is based on best available planning information.

The FY 1999 budget request for the Tritium Supply Program was $157,000,000 in operating funds to pursue the tritium option selected by the Department in December 1998. No capital funding was requested. Congress appropriated $167,000,000 (operating). To fund necessary APT design activities in FY 1999, the Department requested $20,000,000 of the $167,000,000 operating funds be reprogrammed to capital funds. Approval of the reprogramming was granted in January 1999.

1. Construction Schedule History

	Fiscal Quarter				Total Estimated Cost ($000)	Total Project Cost ($000)
	A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
FY 1998 Budget Request *(Preliminary Estimate)*	1Q 1998	4Q 2002	NA	NA	NA	NA
FY 1999 Budget Request [a]	NA	NA	NA	NA	NA	NA
FY 2000 Budget Request *(Current Baseline Estimate)* [b]	1Q 1998	4Q 2001	NA	NA	144,865	660,616

[a] The FY 1999 budget request for the Tritium Supply Program was $157,000,000 in operating funds to pursue the tritium option selected by the Department in December 1998. No capital funding was requested. Congress appropriated $167,000,000 (operating). To fund necessary APT design activities in FY 1999, the Department requested $20,000,000 of the $167,000,000 be reprogrammed to capital funds. Approval of the reprogramming was granted January 1999.

[b] The FY 2000 budget request is based on selection of APT as backup to the primary tritium production source. As backup, development and demonstration and preliminary design of the APT plant will be completed. Capital funding requested for FY 2000 is necessary to continue preliminary design activities.

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
Design			
1998	67,865	67,865	36,722
1999	20,000 [c]	20,000	46,157
2000	31,000 [d]	31,000	38,795
2001	26,000	26,000	23,191
Total	144,865	144,865	144,865

3. Project Description, Justification and Scope

In December, 1998 the Department selected the CLWR to serve as the primary source of tritium with APT to be developed as a backup capability. As backup, an engineering development and demonstration program and preliminary design of the APT plant will be completed.

Tritium is a radioactive isotope of hydrogen used in all of the Nation's nuclear weapons. Without tritium, nuclear weapons will not work as designed. At present, no tritium is produced by the U.S. for the nuclear weapons stockpile. Radioactive decay depletes the available tritium by approximately 5.5% each year. A tritium production capability is required to maintain the nuclear defense structure.

The Secretary of Energy issued a Record of Decision for the Tritium Supply and Recycling Final Programmatic Environmental Impact Statement on December 5, 1995. That Record of Decision announced a plan to pursue a dual track production scenario to ensure an adequate tritium supply, which authorized work to 1) design, build, and test critical components of an accelerator system for tritium production; and 2) purchase an existing CLWR or irradiation services with an option to purchase the reactor for conversion to a defense facility.

On December 22, 1998 the Department selected CLWR to serve as the primary source of tritium with APT to be developed as a backup capability. As such APT must be prepared to be activated as the primary source relatively quickly for some years. To meet this mission the project will complete an engineering development and demonstration program and complete preliminary design for an accelerator-based plant to produce tritium. As the backup, the APT project continues two major activities: 1) the development and demonstration of key components of the linear accelerator and target/blanket

[c] The FY 1999 budget request for the Tritium Supply Program was $157,000,000 in operating funds to pursue the tritium option selected by the Department in December 1998. No capital funding was requested. Congress appropriated $167,000,000 (operating). To fund necessary APT design activities in FY 1999, the Department requested $20,000,000 of the $167,000,000 be reprogrammed to capital funds. Approval of the reprogramming was granted January 1999.

[d] The FY 2000 budget request is based on selection of APT as backup to the primary tritium production source. As backup, development and demonstration and preliminary design of the APT plant will be completed. Capital funding requested for FY 2000 is necessary to continue preliminary design activities.

technologies, and 2) the preliminary design of the APT plant. The program will complete its work in an orderly manner over a period of three years. At the end of that period the program will have proved all major technologies and produced a preliminary design of the plant with prototype designs for a few items advanced beyond preliminary design. Together these results and a site specific Environmental Impact Statement will make it possible, if necessary, to quickly start construction and to build an APT plant in a relatively short period of time. The three year period for completion of engineering development and demonstration and design will avoid an abrupt stop with concomitant major personnel layoffs.

Development activities include: demonstration of integrated high-power operation of the Low Energy Demonstration Accelerator (LEDA) up to 8 MeV, fabrication and high-field testing of a prototypic superconducting radio-frequency cryomodule and the high-power couplers that bring RF power into the superconducting cavities, materials performance analysis, target/blanket development, and validation of neutron and tritium production codes. The results of the development and demonstration program will be fully documented. Facilities with radioactive material will be cleaned up following completion of testing.

Preliminary design packages will be developed for each major facility subsystem and prototype design (with drawings) will be completed for a few key components needed early in construction. A Preliminary Design report will be prepared to fully document the design. Necessary environment, safety and health analysis and documentation will be completed to facilitate a rapid start of construction.

Project Milestones

FY 1998: Begin engineering design of the APT plant

Complete Modular Design Study of the APT plant

FY 1999: Continue engineering development and demonstration activities, including:

- Demonstration of radio frequency quadrupole operation

Complete Environmental Impact Statement for the Savannah River Site

Continue engineering design of the accelerator, target/blanket, and balance of plant facilities

FY 2000: Continue engineering development and demonstration activities

Continue engineering design of the accelerator, target/blanket, and balance of plant facilities

4. Details of Cost Estimate

(dollars in thousands)

	Current Estimate [e]	Previous Estimate [f]
Design Phase		
Preliminary and Final Design costs (Design Drawings and Specifications)	108,649	254,566
Design Management Costs (6.0% of TEC)	8,692	26,567
Project Management Costs (5.0% of TEC)	7,243	22,139
Total Design Cost (86.0% of TEC)	124,584	303,272
Contingencies		
Design Phase (14.0% of TEC)	20,281	139,505
Total Line Item Cost [g]	144,865	442,777

5. Method of Performance

A multi-laboratory project team led by Los Alamos National Laboratory and supported by the Prime Contractor, Burns and Roe Enterprises, Incorporated (BREI), and the Savannah River Site Operator, Westinghouse Savannah River Company, are responsible for engineering development and demonstration. Other participating Laboratories include Brookhaven National Laboratory, Lawrence Livermore National Laboratories, Sandia National Laboratory, Pacific Northwest National Laboratory, Idaho National Engineering Laboratory, Thomas Jefferson National Accelerator Facility, and Oak Ridge National Laboratory.

The APT Prime Contractor (BREI), under a competitive bid cost-plus-incentive fee contract to the Department is responsible for the design of the plant. The Prime Contractor is performing the design with support from the project team, subcontractors, and consultants as necessary.

[e] The Current Estimate is based on selection of APT as backup to the primary tritium production source. The estimate is the cost of completing preliminary design.

[f] The FY 1998 Budget Request was for design only of the APT plant. This estimate includes the full cost of preliminary and final design, based on preconceptual design estimates. Construction is not included.

[g] Escalation rates taken from the FY 2000 DOE escalation multiplier tables issued with the current budget calls.

6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 1998	FY 1999	FY 2000	FY 2001	Outyears	Total
Total project costs							
Total facility costs							
Design [h]	0	67,865	20,000	31,000	26,000	0	144,865
Total facility costs (Federal and Non-Federal)	0	67,865	20,000	31,000	26,000	0	144,865
Other project costs							
Conceptual design cost [i]	38,611	0	0	0	0	0	38,611
NEPA documentation [j]	3,650	2,000	1,000	0	0	0	6,650
Other ES&H costs [k]	14,139	9,000	2,000	2,000	2,000	2,000	31,139
Other project related costs [l]	128,100	120,251	82,000	55,000	33,000	21,000	439,351
Total other project costs	184,500	131,251	85,000	57,000	35,000	23,000	515,751
Total project costs	184,500	199,116	105,000	88,000	61,000	23,000	660,616

7. Related Annual Funding Requirements

(dollars in thousands)

	Current Estimate [m]	Previous Estimate [n]
Related annual costs		
Total related annual costs	NA	NA

[h] Preliminary design packages will be developed for each major facility subsystem and prototype design will be completed for a few key components needed early in construction.

[i] The APT Conceptual Design Report was completed April 1997.

[j] NEPA documentation costs include permitting/licensing, and preparation of the APT Environmental Impact Statement for the Savannah River Site.

[k] Other ES&H costs include the safety analysis/assessments, preliminary safety analysis reports, technical safety requirements, and safety reviews. Necessary environmental, safety and health analysis and documentation will be completed to facilitate rapid start of construction (if needed in the future).

[l] Other project related costs include engineering development and demonstration and program / project management.

[m] Annual operating costs are not applicable to APT as backup.

[n] Annual operating costs are not applicable because the FY 1998 Budget Request was for design only of the APT plant.

97-D-123 Structural Upgrades, Kansas City Plant, Kansas City, Missouri

(Changes from FY 1999 Congressional Budget Request are denoted with a vertical line [|] in the left margin.)

Significant Changes

The Total Project Cost (TPC) increases from $19.8 million to $21.2 million due to the application of burden on Other Project Costs (OPC) which previously had not been burdened.

1. Construction Schedule History

	Fiscal Quarter				Total Estimated Cost ($000)	Total Project Cost ($000)
	A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
FY 1997 Budget Request (*Preliminary Estimate)*	2Q 1997	3Q 1999	3Q 1998	3Q 2003	18,000	19,800
FY 1998 Budget Request	2Q 1997	3Q 1999	3Q 1998	3Q 2003	18,000	19,800
FY 1999 Budget Request [a]	1Q 1998	3Q 1999	3Q 1998	3Q 2003	18,000	19,800
FY 2000 Budget Request *(Current Baseline Estimate)*	1Q 1998	4Q 1999	2Q 1999	2Q 2003	18,000	21,200

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
Design/Construction			
1997	1,400	0	0
1998	0	1,400	0
1999	6,400	6,400	4,600
2000	4,800	4,800	5,600
2001	5,400	5,400	5,100
2002	0	0	2,000
2003	0	0	700

[a] Reflected baseline changes to ensure that all areas within the Stockpile Restructuring Initiative (SMRI) footprint are repaired/reinforced.

3. Project Description, Justification and Scope

This project is required to correct structural overstress caused by gravity loads and will reinforce masonry walls to resist seismic loading within the DOE controlled portion of the Bannister Federal Complex to ensure life safety. On December 16, 1993, a Kansas City Susceptibility Review and Walkdown was held at the Kansas City Plant by Albuquerque Operations Office, and Headquarters. This review was initiated as a result of a September 1993 report by an outside structural consulting firm that documented two principal areas of concern: existing structural overstresses and numerous unreinforced interior masonry walls. It was determined during the review that the structural overstresses and unreinforced masonry walls findings were an immediate concern.

To provide an immediate response to initiate risk reduction and potential loss of government assets, structural modifications were incorporated into all ongoing projects which appreciably renovated affected areas. Deficiencies in the remainder of the plant not affected by on-going projects are being addressed in this line item submission.

The first part of this line item is required to provide structural overstress relief in accordance with current building code and DOE Order requirements to ensure life safety. This type of overstress is caused by gravity loads (dead loads, live load and snow load) and wind loading only. Overstressed locations will be repaired to reduce the possibility of structural failure and bring the structure into compliance with DOE Orders and codes.

The second part of this line item is required to reinforce masonry walls to resist the seismic loading up to a "500 year event." The existing masonry walls will fall at a "100 year event." Approximately 40 percent of the masonry walls in the DOE controlled part of the Federal Complex (upon completion of the Stockpile Management Restructuring Initiative Line Item) are not reinforced to resist seismic loading. Seismic codes were not in place when the Kansas City Plant was constructed. Potential seismic overstresses have been identified because of the presence of many unreinforced masonry walls added to the building for fire protection purposes. Failure of these walls would constitute a life safety hazard in the event of seismic activity.

The Federal Complex is currently occupied by several Federal Government Agencies. Corrective activities will be performed in DOE controlled areas only, unless an item is identified through the engineering study that would affect both DOE and the General Services Administration. This project will include the following upgrades:

- Column ribs will be post tensioned on end bays to increase bending moment capacity. This will be done by tensioning two steel rods underneath the subject ribs. The rods will be anchored into the end bay roof beam and bolted through to the interior roof beam.
- Selected rib ends will be supported with steel suspenders and long threaded rods through the roof shell or saddles and fastened to the roof beams to increase rib shear capacity and overcome the member strength loss due to existing cracking caused by excessive shear loading.
- Roof shell openings will be reinforced with steel straps adjacent to openings and parallel to the barrel axis. This provides a means of externally reinforcing the thin concrete shell.
- The mezzanine roof slab will be reinforced with intermediate steel beams supported by the concrete roof support beams.

- Supplemental support will be provided to mezzanine concrete roof structure integrity. This would stop further deterioration of the shell.
- Roof shell cracks will be injected with epoxy to reestablish roof structure integrity. This would stop further deterioration of the shell.
- Structural steel blocking will be attached to the roof structure on each side of existing masonry walls. This will eliminate drift during seismic activity and ultimately failure of the walls independent of the remaining structure. This blocking would be spaced approximately 4 feet center to center. The blocking would consist of steel angles fastened to a horizontal surface with the vertical leg of the angle placed against the top of the masonry wall and flat plates fastened to vertical surfaces of the roof structure and lapped down over the top course of the masonry walls.
- Steel strong-backs will be installed adjacent to masonry walls. This strong-back will be a structural tube fixed to the building floor at the bottom of the wall and roof structure at the top. The wall would be bolted to the strong-backs at approximately 4 feet centers. The strong-backs themselves would be on 8 foot centers. This would prevent a tall wall from collapse during a seismic event that produced lateral movement normal to the wall.
- The top of free-standing masonry walls will be supported with roof structure mounted braces. These braces would then be mounted to a steel strut fastened to the roof.

Main Manufacturing Building Overstresses Under Gravity Loading:

- Roof Ribs - 4 percent of the ribs are overstressed.
- Roof Beams - < 1 percent of the beams are overstressed.
- Roof Shell With Openings - 34 percent of the roof shells are overstressed.
- Columns - 0 percent of the columns are overstressed.
- Basement Level Supported Floor Slab - 5 percent of the floor slab is overstressed.
- 2nd Level Supported Floor Slab - 6 percent of the floor slab is overstressed.

Seismic events at KCP can be generated by two faults. The New Madrid Fault is approximately 250 miles east of the Kansas City Plant. The New Madrid fault system extends 120 miles from the area of Charleston, Missouri and Cario, Illinois through New Madrid, Missouri and to Marked Tree, Arkansas. It crosses five state lines and crosses the Mississippi River in three places and the Ohio River in two places. The fault is active, averaging more than 200 measured events per year (1.0 or more on the Richter scale). Tremors large enough to be felt (2.5-3.0 on the Richter scale) are noted annually. Every 18 months the fault releases a shock of 4.0 or more capable of local minor damage. Magnitudes of 5.0 or greater occur about once per decade, can do significant damage, and can be felt in several states. A damaging earthquake along the fault of 6.0 or greater occurs about every 80 years with the last one in 1895. A major earthquake along the fault of 7.5 of greater happens every 200-300 years, with the last one in 1812. A quake of this magnitude would be felt throughout half of the United States. This information is based on a document titled "About the New Madrid Fault" from Southeast Missouri State University Center for Earthquake Studies, David Stewart, Director. The document is undated.

The other fault that could affect the Kansas City Plant is the Humbolt Fault Zone (Nehemma Ridge) located approximately 80 miles west of Kansas City in the Manhattan-Wamego, Kansas area. The largest earthquake that has occurred in Kansas is a probable Richter magnitude of about 5.2-5.3, which occurred in 1867 and events of this size can be expected to occur every 100 years. An earthquake of Richter magnitude 6.0-6.5 at this fault is likely to occur on average once in about 1000 years. This information is based on a document titled "Kansas Geological Survey" from the University of Kansas on October 10, 1990 by Don W. Steeples, Ph.D., Seismologist and Deputy Director.

In March 1994, the KCP was placed in performance Category 1, based on an extensive study of mission dependency of specific KCP operations, Production Risk Evaluation Program, and the hazard assessment in the Site Safety Assessment. This recommendation was agreed to by KCAO, AL, DOE-HQ, and AlliedSignal. A site specific Seismic Hazard Analysis was performed during the first quarter of FY 1994 by DOE-HQ for the KCP. This resulted in a reduction of the seismic zone factor from 0.15g to 0.06g. The Design Basis Earthquake (DBE) of 0.06g is comparable to a 500-year event. The former values are required by the 1994 Uniform Building Code for Zone 2A where the KCP is located. The lower seismic zone factor resulted in significant reduction in the calculations used in the analysis and has been taken into account in the cost estimate. The existing masonry walls are currently protected to a 100-year event.

The applicable DOE Orders and Codes that apply to this project are as follows:

- DOE Order 420.1, "Facility Safety."
- Executive Order 12941 "Seismic Safety of Existing Federally Owned or Leased Buildings."
- The American Institute of Steel Construction (A.I.S.C.), American Concrete Institute (A.C.I.), and Uniform Building Code (UBC) define analysis and design requirements for corrective actions.

The consequence of not funding this line item is a continued life safety risk due to structural overstresses and, in the event of seismic activity, potential failure of unreinforced masonry walls. This project is in accordance with current mission needs and is being coordinated with the Stockpile Management Restructuring Initiative.

Project Milestones

FY 1998: A-E work initiated

FY 1999: A-E work completed

Physical construction starts

FY 2000: Maintain schedules to complete physical construction by 2Q 2003

4. Details of Cost Estimate

(dollars in thousands)

	Current Estimate	Previous Estimate
Design Phase		
Preliminary and Final Design costs (Design Drawings and Specifications)	1,626	815
Design Management Costs (2.8% of TEC)	504	252
Project Management Costs (0.3% of TEC)	49	25
Total Design Costs (12.1% of TEC)	2,179	1,092
Construction Phase		
Buildings	10,830	10,830
Standard Equipment	360	360
Inspection, Design and Project Liaison, Testing, Checkout and Acceptance	918	1,660
Construction Management (4.7% of TEC)	842	842
Project Management (1.1% of TEC)	195	471
Total Construction Costs (73.0% of TEC)	13,145	14,163
Contingencies		
Design Phase (0.7% of TEC)	131	200
Construction Phase (14.1% of TEC)	2,545	2,545
Total Contingencies (14.9% of TEC)	2,676	2,745
Total, Line Item Costs (TEC) [b]	18,000	18,000

Overhead rates were calculated at a factor of 14 percent for procurement and 77 percent for internal labor.

5. Method of Performance

Design and inspection shall be performed under an AlliedSignal-negotiated architect-engineer subcontract. Construction will be accomplished by fixed price subcontracts awarded after competitive proposals and administered by AlliedSignal.

[b] Escalation rates taken from the FY 1997 DOE escalation multiplier tables. Escalation rates are calculated to the midpoint of each activity.

6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 1998	FY 1999	FY 2000	FY 2001	Outyears	Total
Total project cost							
Total facility Cost							
Design	0	0	2,000	310	0	0	2,310
Construction	0	0	2,600	5,290	5,100	2,700	15,690
Total facility costs (Federal and Non-Federal)	0	0	4,600	5,600	5,100	2,700	18,000
Other project costs							
Conceptual design cost	110 [c]	0	0	0	0	0	110
Other project-related costs	360	350	420	420	600	940	3,090
Total other project costs	470	350	420	420	600	940	3,200
Total Project Cost (TPC)	470	350	5,020	6,020	5,700	3,640	21,200

7. Related Annual Funding Requirements

(FY 2003 dollars in thousands)

	Current Estimate	Previous Estimate
Related annual costs (estimated life of project--30 years)		
Total related annual funding (operating from FY 2003 through FY 2032)	0	0

[c] Prior years cost of $615,000 was in error and should have been shown as $110,000 on the FY 1999 Congressional Budget Request.

95-D-102, CMR Upgrades Project, Los Alamos National Laboratory, Los Alamos, New Mexico

(Changes from FY 1999 Congressional Budget Request are denoted with a vertical line [|] in the left margin.)

Significant Changes

None.

1. Construction Schedule History

	Fiscal Quarter				Total Estimated Cost ($000)	Total Project Cost ($000)
	Title I & II A-E Work Initiated	Title I & II A-E Work Completed	Physical Construction Start	Physical Construction Complete		
FY 1995 Budget Request [a]	1Q 1992	1Q 1997	3Q 1993	4Q 2003	194,750	204,000
FY 1996 Budget Request	1Q 1992	1Q 1997	3Q 1993	4Q 2004	194,750	204,000
FY 1997 Budget Request	1Q 1992	1Q 1999	3Q 1993	4Q 2002	174,100	223,635
FY 1998 Budget Request	1Q 1992	1Q 1999	3Q 1993	4Q 2002	174,100	223,635
FY 1999 Budget Request	1Q 1992	1Q 1999	3Q 1993	4Q 2002	174,100	223,635
FY 2000 Budget Request *(Current Baseline Estimate)*	1Q 1992	1Q 1999 [b]	3Q 1993	4Q 2004 [c]	174,100 [c d]	223,635

[a] Prior to FY 1995, CMR Upgrades Phase 1 was a subproject within Nuclear Weapons Research Development and Testing Facilities Revitalization, Phase III (90-D-102). In FY 1995, Phase 1 was segregated and the scope of Phases 2 and 3 were added to create this stand alone line item.

[b] Title I activities have been completed for all Phase 1 subprojects. Phase 2 subproject Title I activities were ongoing when the project was placed on hold, and Title I baselines have not been established.

[c] Project has been restarted to address safety and reliability requirements as an outcome of the facility; Basis for Interim Operations (BIO) Review and Associated Technical Safety Requirements (TSRs).

[d] Phase 2 CDR baseline estimate.

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
Design/Construction			
1992	18,250 [e]	18,250	2,757
1993	10,000	10,000	5,061
1994	10,250	10,250	10,504
1995	3,300	3,300	13,363
1996	10,940 [f]	10,940	14,909
1997	15,000	4,000	10,081
1998	5,000 [g]	10,800	2,813
1999	5,000 [h]	10,200	14,729
2000	18,000 [i]	18,000	19,729
2001	20,450	20,450	21,179
2002	20,900	20,900	20,900
2003	19,800	19,800	19,800
2004	17,210	17,210	18,275

3. Project Description, Justification and Scope

The project has been restarted to address safety and reliability requirements as an outcome of the facility Basis for Interim Operation (BIO) review and associated Technical Safety Requirements (TSRs). Ongoing programmatic reviews and incorporation of corrective actions and lessons learned from Phase 1 Assessments will be utilized to ensure that required upgrades will be completed within current TEC of $174,100,000.

[e] $6,250,999 was reprogrammed to CMR, Phase 1 subproject of Nuclear Weapons Research, Development and Testing Facilities Revitalization Phase 3 (90-D-102) from Special Nuclear Materials Laboratory Replacement Project (88-D-105). Reprogramming 91-R-14 was executed in FY 1992.

[f] $1,000,000 was reprogrammed by DOE Internal Reprogramming to the CMR Upgrades Project (95-D-102) in the 1st Qtr. FY 1996 from Special Nuclear Materials Laboratory Replacement Project (88-D-105).

[g] Congress provided appropriations below the original request ($15,700,000) based on DOE input relating to estimated impact of project suspension.

[h] FY 1999 funding reduction from that presented in the FY 1998 CPDS is based on suspension and restart activities and Congressional reductions. Funding in FY 1999 will be applied to Phase 1 design construction and Phase 2 design work.

[i] The FY 2000 funding request will be applied to ramp-up of construction projects supporting Basis for Interim Operations (BIO), safety systems, and Phases 1 and 2 design and construction. The FY 2000 funding of $18.0 million is based on current need requirements.

The Chemistry and Metallurgy Research (CMR) Building is the largest structure at the Los Alamos National Laboratory (550,000 square feet). Construction of the CMR Building was completed in 1952. Most of the major mechanical and electrical equipment has reached the end of its design life.

Since its construction over 40 years ago, the CMR Building has been used for research, development, and analytical work with plutonium, uranium and their alloys, and other materials in support of weapons, nuclear materials, and other Laboratory programs. This work continues to be essential to the nation's weapons program, with the principal activities in the building being in support of the plutonium research, development, and demonstration activities conducted at the Laboratory's Plutonium Handling Facility at TA-55. The activities that are critical to these plutonium operations are:

Essential daily analytical chemistry and metallurgical services on plutonium and other actinides.

- Analyses of plutonium metal preparations for the Laboratory's Weapons Research, Development, and Test Programs.
- Analyses required for development and demonstration of new and improved processing methods for scrap recovery.
- Analyses required for accountability and verification of material received or shipped and for on-site transfers.

The CMR Building future role is also essential for support of several major Defense Programs areas which include:

- Enhanced Safety and Reliability of Nuclear Weapons
- Lead Technical Laboratory for Pu and U Processing
- Weapons Dismantlement and Component Storage
- Materials Disposition
- Nonproliferation
- Pit Production

The primary purpose of this project is to upgrade facility systems and infrastructure that have been in continuous operation for over 40 years and are near the end of their useful life. Such upgrading will ensure the continued safety of the public and Laboratory employees and increase the operational safety, reliability and security of essential activities. Increased safety, reliability, and security are critical to the continued operation of the Laboratory's Stockpile Management Programs and other national defense programs.

The Special Nuclear Materials Laboratory (SNML) Project was authorized (88-D-105) to replace the CMR Building at Los Alamos National Laboratory. In FY 1990, the project was put on hold pending a substantive review of the project including other potential options for providing the necessary specialized Laboratory space. As the planned completion date of the SNML continued to be pushed back, it became necessary to provide interim upgrades to CMR to allow its safe and reliable use; $6,250,000 was

reprogrammed (91-R-14, executed in FY 1992) from the SNML line item to Project 90-D-102, Nuclear Weapons Research, Development and Testing Facilities Revitalization, Phase 3 (WRD&T Revit., 3), subproject CMR Upgrades (Phase 1). Later in FY 1991, it was decided not to proceed with the construction of SNML but provide interim upgrades to CMR (Phase 1) and to identify further upgrades based on safety and risk assessment, for continued long-term operations. The result of these safety and risk assessments is an Interim Safety Analysis Report (ISAR). The findings of the ISAR are the basis for the scope of CMR Upgrades Phase 2, which was combined with Phase 1 to produce this stand alone line item in FY 1995.

The ISAR includes an analysis of risks associated with natural phenomena design basis accidents, current operations, and comparison to DOE Design Criteria (6430.1A). The ISAR was utilized as the basis to identify and prioritize upgrades that would be required to continue operations in a safe, secure, and reliable manner for at least the next 20 years.

CMR Phase 1 Upgrade

TEC	Previous	FY 1998	FY 1999	FY 2000	FY 2001	Outyears	Construction Start-Completion Dates
$51,600	$ 51,000	$ 600	$ 0	$ 0	$ 0	$ 0	3Q 1993 - 4Q 1999 [j]

Phase 1 was formerly part of WRD&T Revitalization, Phase III with a TEC of $49,500,000. Based upon the 1995 baseline change proposal and the completion of the CDR, the TEC changed to $51,600,000 and completion date changed from 3rd Qtr. FY 1996 to 3rd Qtr. FY 1999.

Phase 1 of this project consists of required and urgent capital equipment replacements and upgrades in the CMR Building. Individual tasks were initially identified by a panel commissioned by the Deputy Assistant Secretary for Military Application (DASMA) in July 1990, as the minimum essential effort required to maintain operations in the CMR Building while a Safety Analysis Report (SAR) was prepared.

The equipment replacements and upgrades included:

 # Continuous Air Monitor (CAM) Installations

Install a new CAM system in the Wings 3, 5, 7, and 9 laboratories. Upgrades include installation of CAMs, Fixed head Air Samplers (FAS), and glovebox hand monitors as required by DOE Order 5480.11 and AR 3-7. Remote monitoring capabilities at the Health Physics office and a data logging system are also included. Existing vacuum systems in Wings 3, 5, and 7 will be utilized while the vacuum system in Wing 9 will be expanded.

[j] Phase 1 Upgrade Project has been restarted to address safety and reliability requirements as an outcome of the facility; Basis for Interim Operations (BIO) Review and Associated Technical Safety Requirements (TSRs).

 # HVAC Blowers and Motors

Replace existing laboratory exhaust fans in the CMR Building and provide vibration analysis for approximately twenty exhaust fans in the CMR Building. Immediate needs are to replace the 200 HP exhaust fans on the first floor of the filter towers in Wings 3, 5, and 7. Other exhaust fans may require replacement contingent on the scope of the Phase 2 Confinement Zone Separation upgrade.

 # Electrical Upgrades

The Distribution Analysis and Power Planning Evaluation and Reporting (DAPPER) software will be used for analysis, calculations, and record drawings for all electrical upgrades. Provisions to incorporate a future facility computer monitoring and limited control system will be provided as part of the Electrical Upgrades.

Exterior Electrical Upgrades: Replace inadequately sized exterior sectionalizing switches, eliminate existing exterior single point failures, modify exterior underground electrical system to allow switching and maintenance functions, upgrade existing controls and correct deficiencies to the existing administration wing, and Wings 1, 3, 4, and 9 substations.

Substations Upgrade: Replace substations in Wings 2, 5, and 7.

Wing Electrical Upgrades: Upgrade the interior low voltage power distribution system for all wings except 2 and 4 in the CMR Building. This includes the replacement of power and lighting panel boards, laboratory power panel boards, bus ways, motor control centers, replacement of all obsolete branch and feeder wiring systems, rewiring of laboratories, and upgrading the emergency and exit lighting systems.

Electrical Upgrades to Support Safe Standby, Wings 2 and 4: Upgrade the interior low voltage power distribution system in Wings 2 and 4, which is necessary for safety systems.

Spinal Corridor Cable Tray: Provide a cable tray system in the attic spinal corridor.

Grounding and Lightning Protection: Upgrade the CMR Building grounding and lightning protection systems.

 # Stack Monitors Upgrade

Provide a stack effluent monitoring system for the CMR Building that is in compliance with DOE and EPA requirements. Each stack will be evaluated to determine the type of monitoring required. Each stack system will be stand alone, consisting of in-line samplers, CAMS, vacuum pumps, and associated tubing, wiring, and signal processing equipment. This upgrade also includes a data collection system from all of the stack CAM's to the CMR operations room and the ES&H operations room. The stack effluent monitoring will be in compliance with 40 CFR 61 and DOE Order 6430.1A.

 # Uninterruptable Power Supply (UPS) Installation

This Upgrade is in support of the Stack Monitors Upgrade. There will be one UPS supporting the stack monitoring data collection computer systems. The UPS will be capable of providing backup power to the stack effluent monitoring systems for a 4 hour period.

 # Duct Modification

Backdraft Dampers: Provide positive shutoff intake backdraft dampers in the supply air ductwork in Wings 2, 3, 4, 5, 7, and 9.

Duct Washdown Upgrade: Upgrade the existing exhaust duct washdown system in Wings 3, 5, and 7. This includes replacement of piping, valves, and spray heads and installation of new flow measurement devices.

 # Sanitary Sewer Upgrades

This subproject was completed 3rd Quarter of FY 1994.

 # Acid Vents and Drains Upgrades

Aging piping and a lack of gradient in the acid drain system in the basement of the CMR Building has led to corrosion and clogging of the system. This upgrade includes evaluation and documentation of the existing system, prioritization of the system deficiencies, and cost estimates to correct each deficiency for Wings 3, 5, and 7. Construction will include replacement of piping and components including threaded nipples, fittings, valves, flanged fittings, and gaskets with compatible new components. Remaining system replacement will be incorporated in Phase 1.

 # Fire Hazard Analysis (Formerly Fire Protection Upgrades)

This subproject was completed in the 2nd Qtr. FY 1996.

 # Safety Analysis Report

This subproject was completed in the 4th Qtr. FY 1995.

 # Engineering Assessments/CDR/EA

Engineering Assessment--This project was completed 2nd Qtr. FY 1996.
An environmental assessment, including all aspects of Phase 2, has been prepared and approval based upon the conceptual design report. This EA assessed the environmental impact of construction as represented by the Phase 2 scope of work.

CMR Phase 2 Upgrade
The Phase 2 components are needed to maintain infrastructure, improve safety for public and workers and enhance environmental management.

TEC	Previous	FY 1998	FY 1999	FY 2000	FY 2001	Outyears	Construction Start-Completion Dates
$122,500	$ 6,140	$ 4,400	$ 5,000 [c]	$ 18,000 [i]	$ 20,450	$ 68,510	2Q 1997 - 4Q 2004 [h]

Based upon completion of the CDR for the Phase 2 scope, the TEC for this phase was increased from $85,000,000 to $122,500,000. The construction start date changed from 2nd Qtr. FY 1996 to 2nd Qtr. FY 1997 and the end date changed from 4th Qtr. FY 2003 to 4th Qtr. FY 2004.

The scope of the following subprojects is being reviewed in FY 1998 based on ongoing programmatic evaluations and incorporation of corrective actions and lessons learned from the Phase 1 assessments to ensure that required upgrades will be completed within the current TEC of $174,100,000.

The additional long term upgrades developed by the Phase 2 CDR process are:

Seismic and Tertiary Confinement (Wings 3, 5, 7, and 9)
Structural strengthening to meet the seismic criteria for hazard Category 2 operations. Modification of the existing exterior structural openings in these wings to create a tertiary confinement barrier. Structural strengthening of the Administration Wing (which houses the Operations Center) to meet the seismic criteria for worker safety. Hardening of building openings to security requirements which are also being modified for tertiary confinement. These openings include doors, windows, louvers, etc.

Ventilation and Confinement Zone Separation (Wings 3, 5, 7, and 9)
Renovate the mechanical systems and the related control systems to replace components that are near the end of their useful lives and to improve confinement zone separation throughout each Wing. Architecturally modifying Wings 3, 5, and 7 to create a secondary confinement barrier.

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[c] Project has been restarted to address safety and reliability requirements as an outcome of the facility; Basis for Interim Operations (BIO) Review and Associated Technical Safety Requirements (TSRs).

[i] The FY 2000 funding request will be applied to ramp-up of construction projects supporting BIO, safety systems, and Phases 1 and 2 design and construction. The FY 2000 funding of $18.0 million is based on current need requirements.

[h] FY 1999 funding reduction from that presented in the FY 1998 CPDS is based on suspension and restart activities and Congressional reductions. Funding in FY 1999 will be applied to Phase 1 design construction and Phase 2 design work.

Providing an alarm for each enclosure to alert workers when the mechanical systems are not operating according to safety standards for the facility. Providing a central, chilled water plant to support the mechanical systems' renovations to the building.

Standby Power (Wings 3, 5, 7, and 9)
Provide standby electrical power to operate the most important mechanical systems at a reduced level sufficient to maintain negative pressure in the laboratory enclosures. This will reduce possibility of spread of contamination due to the loss of offsite power to the ventilation system.

Communications (Wings 3, 5, 7, and 9)
Improve emergency communications systems thereby improving worker safety.

Wing 1 (HVAC) Upgrades/Wing 1 Interim Decontamination
Decontaminate the unoccupied, contaminated laboratories in Wing 1, modifying the HVAC exterior intake and exhaust locations for Wing 1 to improve worker health and safety.

Operations Center (Administration Wing)
Improve the ergonomics and reliability of the building's central monitoring and control capabilities. Install transfer capability and wiring from the standby power generator to the CMR Operation Center to support all functions or systems required to recover the facility after significant accidents.

Process Chilled Water (Wings 3, 5, and 7)
Replace the 2 existing 40 year old evaporative coolers in each Wing with a single refrigeration unit to provide chilled water for process equipment. Also, replace the existing 40 year old process chilled water piping system with a new piping system.

Main Vault
CAMs - Install new Canberra CAMs in the vault, ASM 2000 controllers in the anteroom, and incorporate remote monitoring (similar to Wing CAM systems) to the ES&H office. This upgrade would utilize the generic design established for the Wing CAMs.

Acid Vents and Drains (Wings 3, 5, and 7)
Correct deficiencies not covered in Phase 1 upgrades (Phase 1 addresses major leaks and flanges). Correct area with inadequate slope, replace branches and risers to laboratories as required, and upgrade the ventilation of the system.

Fire Protection Upgrades (Entire Facility)
Correct fire protection system deficiencies as identified in the 1992 NFPA 101 analysis, and the Fire Hazard Analysis completed in Phase 1. Deficiencies will be prioritized in a cost benefit analysis which will be completed in Phase 1. Examples of current identified deficiencies are: Add check valves in fire protection risers, add backflow preventors in the sprinkler system, provide fire dampers in duct penetrations, replace fire alarm panels.

 # Exhaust Duct Washdown Recycling System (Wings 3, 5, and 7)

This recycling system will significantly reduce the waste stream from the facility. The reduction in the waste stream will reduce the demands on the current waste treatment plant.

 # Wings 2 and 4 Safe Standby

This upgrade includes the costs necessary to establish a safe standby condition for Wings 2 and 4 pending future programmatic use. Included are identification of safety systems required for safe standby deactivation/decontamination of abandoned systems and gloveboxes, removal of all radioactive materials and chemicals, and removal or stabilization of all loose contamination.

 # ES&H Support Activities

Additional enhanced ES&H support activities based on the lessons learned from Phase 1 are being incorporated. These efforts include waste management, waste minimization, ES&H support, risk analysis, and ES&H equipment including personnel protective equipment.

Project Milestones

FY 1999: Start -	Phase 1 - Stack Monitors
	Phase 1 - Ductwork (Duct Washdown)
	Phase 2 - Portion of Fire Protection (Fire Alarm Panels, Combustible Loading) [k]
	Phase 2 - Portion of Wings 2 and 4 Safe Standby (HVAC DP Indicators)
	Phase 2 - Portion of Ventilation and Confinement Zone (HVAC DP Indicators, Wing 9 Ventilation, Air Compressors) [k]
	Phase 2 - Portion of Communications (EPAS) [k]

[k] Activities to be completed per the Technical Safety Requirements (TSR) Implementation Plan schedules.

	Complete -	Phase 1 - Ductwork (Duct Washdown)
		Phase 2 - Portion of Fire Protection (Fire Alarm Panels, Combustible Loading) [k]
		Phase 2 - Portion of Wings 2 and 4 Safe Standby (HVAC DP Indicators) [i]
		Phase 2 - Portion of Ventilation and Confinement Zone (HVAC DP Indicators, Air Compressors) [k]
		Phase 2 - Portion of Communications (EPS) [k]
FY 2000:	Start -	Phase 1 - Sanitary Sewer
		Phase 1 - Acid Vents and Drains
		Phase 1 - Continuous Air Monitors
		Phase 1 - Electrical
		Phase 1 - Power Distribution
		Phase 1 - Fire Protection
		Phase 2 - Portion of Ventilation and Confinement Zone (HVAC Testing and Balancing, Controls Upgrades)
	Complete -	Phase 1 - Sanitary Sewer
		Phase 1 - Acid Vents and Drains
		Phase 1 - Stack Monitors
		Phase 1 - Continuous Air Monitors
		Phase 1 - Fire Protection
		Phase 2 - Portion of Ventilation and Confinement Zone (Wing 9 Ventilation, HVAC Testing and Balancing)

[k] Activities to be completed per the Technical Safety Requirements (TSR) Implementation Plan schedules.

[i] The FY 2000 funding request will be applied to ramp-up of construction projects supporting BIO, safety systems, and Phases 1 and 2 design and construction. The FY 2000 funding of $18.0 million is based on current need requirements.

Subproject Detail [j] - PHASE 1

	PM&S	ED&I	CONST.	STD EQUIP	CONTING.	TEC
Subprojects						
Phase 1						
CAM Installation	536	718	1,447	1,274	204	4,179
HVAC Blowers & Motors	116	129	426	176	56	903
Electrical Upgrades	3,443	4,815	14,832	1,831	1,913	26,834
Stack Monitors Upgrades	430	1,467	704	643	112	3,356
Ductwork Mods.	242	271	1,218	0	153	1,884
Sanitary Sewer Mods.	21	71	68	0	0	160 [m]
Acid Vents & Drain Mods.	193	577	651	0	86	1,507
Fire Hazard Analysis (formerly Fire Protection Upgrades)	299	0	0	0	15	314 [o]
Safety Analysis Report	2,525	0	0	0	0	2,525 [o]
Environmental Assessment	1,273	0	0	0	69	1,342 [o]
UPS Installation	77	177	304	0	39	597
Engineering Assessment/ Phase 2 Planning	1,284	1,669	0	0	0	2,953 [n]
CDR	678	4,111	0	0	257	5,046 [o]
Phase 1 Subtotal	11,117	14,005	19,650	3,924	2,904	51,600

[j] The estimates do not include site overhead/landlord costs since FY 1992 was the first year of project funding.

[m] Completed subproject or task.

[n] Additional Engineering Planning/Assessments may be required pending completion of the DOE and LANL assessments.

[o] CDR and Environmental Assessment costs are carried as part of the Phase 1 Engineering Activities/Phase 2 Planning Activities and are broken out for clarity.

Subproject Detail - PHASE 2

Subprojects	PM&S	ED&I		STD EQUIP		TEC
Seismic & Teritary Confinement	4,028	2,855		0	1,947	
Ventilation & Confinement Zone Separation	17,791	8,358		0	8,326	68,651
Standby Power.	1,534	1,070		0	717	
Communications		926	1,243		657	4,152
Decontamination	167			0	78	644
		73				
Operations Center	425	391		0	199	
Process Chilled Water		746	1,734		720	4,319
. . . . .	187		180	0		723
Acid Vents & Drains	2,066	709		0	1,414	
Fire Protection		363	2,300		521	4,298
Recycle	303			0	142	
		255				
Wings 2 & 4 Safe Standby . . .		784	3,845		906	7,472
. . . . .	11,117		19,650	3,924		51,600
Phase 2 Subtotal	31,753	16,798		250	15,715	
Total Estimated Cost		30,803	77,640		18,619	174,100

experience with drawing and man hour requirements established for each discipline, ED&I represents approximately 15 percent of TEC. ED&I costs captured in Phase 1 included Phase 2 planning and CDR

Contingencies represent approximately 10.7 percent of TEC. The contingency rate is the result of a contingency analysis of various items based on relative risk ratings compared to ratings of relative

contingency rates depending on the item. The contingency rate shown here is an average rate resulting from the contingency analysis and weighing according to the item's relative cost.

4. Details of Cost Estimate [l] [p]

(dollars in thousands)

	Current Estimate	Previous Estimate
Design and Management Costs		
Preliminary and Final Design Costs (Drawings and Specifications)	25,989	25,989
Design Management Costs (2.7% of TEC)	4,814	4,814
Project Management Costs (6.7% of TEC)	11,744	11,744
Total Design Costs (24.4% of TEC)	42,547	42,547
Construction Phase		
Special Equipment	77,640	77,640
Other Structures	4,174	4,174
Construction Management (3.1% of TEC)	5,391	5,391
Project Management (14.7% of TEC)	25,729	25,729
Total Construction Costs (64.9% of TEC)	112,934	112,934
Contingencies		
Design Phase (2.9% of TEC)	5,031	5,031
Construction Phase (7.8% of TEC)	13,588	13,588
Total Contingencies (10.7% of TEC)	18,619	18,619
Total, Line Item Costs (TEC) Phase 1 and Phase 2 [q]	174,100	174,100

5. Method of Performance

Procurement will be accomplished under fixed-price subcontracts awarded on the basis of competitive bidding. Consideration will be given to cost-plus-fixed fee on decontamination and refurbishment work on the CMR. Upgrades construction will be done by fixed price contractors and the Laboratory's support services subcontractor. The operating contractor and contracted Architect-Engineers will perform construction inspection.

6. Schedule of Project Funding

(dollars in thousands)

[l] The estimates does not include site overhead/landlord costs since FY 1992 was the first year of project funding.

[p] Project management and contingency were prorated based on the ratio of total design (27.4%) and construction (72.8%) costs. Previously project management and contingency were not required to be broken out by the design phase and the construction phase when the project was baselined.

[q] Escalation rates taken from the FY 1995 DOE escalation multiplier tables.

	Prior Years	FY 1998	FY 1999	FY 2000	FY 2001	Outyears	Total
Total project costs							
Total facility costs							
Design	36,505	600	1,700	2,500	3,000	3,273	47,578
Construction	20,170	2,213	13,029	17,229	18,179	55,702	126,522
Total facility costs (Federal and Non-Federal)	56,675	2,813	14,729	19,729	21,179	58,975	174,100
Other project costs							
Other project-related costs	11,268	1,700	2,000	2,000	2,000	30,567	49,535
Total other project costs	11,268	1,700	2,000	2,000	2,000	30,567	49,535
Total Project Cost (TPC)	67,943	4,513	16,729	21,729	23,179	89,542	223,635

7. Related Annual Funding Requirements

(FY 2004 dollars in thousands)

	Current Estimate	Previous Estimate
Related annual costs (estimated life of project--40 years)		
Facility operating costs	10,000	10,000
Facility maintenance and repair costs	2,500	2,500
Programmatic operating expenses directly related to the facility	30,000	30,000
Capital equipment not related to construction but related to the programmatic effort in the facility	1,000	1,000
GPP or other construction related to the programmatic effort in the facility	1,000	1,000
Utility costs	2,450	2,450
Total related annual costs (operating from 2004 through FY 2043)	46,950	46,950

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(Changes from FY 1996 Significant Changes Congressional Budget Request are denoted with a vertical line [|] in the left margin.)

- # FY 2000 funding request to increase project total estimated cost (TEC) by $6,200,000.
- # Extend the project completion from 4th quarter FY 1998 to 4th quarter FY 2000.
- # Increase the other project costs (OPC) costs associated with the schedule extension.

1. Construction Schedule History [a]

	Fiscal Quarter				Total Estimated Cost ($000)	Total Project Cost ($000)
	A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
FY 1988 Budget Request *(Preliminary Estimate)*	1Q 1988	2Q 1992	2Q 1988	1Q 1994	109,700	114,700
FY 1989 Budget Request.	1Q 1988	2Q 1992	2Q 1988	3Q 1994	109,700	114,700
FY 1990 Budget Request	2Q 1988	2Q 1992	4Q 1988	4Q 1995	109,700	114,700
FY 1991 Budget Request	2Q 1988	2Q 1992	4Q 1988	3Q 1996	109,700	114,700
FY 1992 Budget Request	3Q 1988	3Q 1994	4Q 1988	3Q 1996	109,700	114,700
FY 1994 Budget Request	3Q 1988	1Q 1995	3Q 1990	4Q 1997	125,000	130,000
FY 1995 Budget Request	3Q 1988	4Q 1995	3Q 1990	4Q 1997	125,000	130,000
FY 1996 Budget Request	3Q 1988	4Q 1995	3Q 1990	4Q 1997	125,000	130,000
FY 1997 Budget Request	3Q 1988	4Q 1995	3Q 1990	4Q 1997	125,000	130,000
FY 2000 Budget Request *(Current Baseline Estimate)*	3Q 1988	3Q 1996	3Q 1990	4Q 2000	131,200	143,600

[a] No Construction project data sheet was included with the budget requests for FY 1993, FY 1998 and FY 1999.

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
Design/Construction			
1988	5,700	5,700	69
1989	7,500	3,500	2,586
1990	5,417	2,417	3,514
1991	18,244	23,701	8,407
1992	30,000	30,692	15,042
1993	0	372	9,700
1994	20,000	1,862	10,647
1995	15,000	21,707	20,015
1996	13,400	20,992	21,886
1997	9,739	5,922	14,867
1998	0	2,786	6,568
1999	0	4,849	7,479
2000	3,500	3,500	7,000
2001	2,700	3,200	3,420

The Security Enhancements Project was initiated in 1988 to address security risks at Pantex. Twelve subprojects were identified to address these risks. The project is currently 94 percent complete, with ten of the twelve subprojects 100% complete, and an eleventh fully funded. The project is currently in the final stages, activation and cut over to the new system.

This project has seen a cost growth of about $9.0 million due to enhanced mission criteria, directed scope changes, and software development cost overruns. Actions have been taken to manage spending and control costs within the existing funding limits. However, an additional $6.2 million is required to finish the project.

The funding increase will assure successful activation of the Electronic Enhancements subproject and complete procurement and installation of the Aircraft Detection System (ADS). ADS is a high security priority and will reduce security costs by $1.5 million per year.

Discussion:

The SEP is currently ninety-four (94) percent complete, of which ten (10) of the twelve (12) subprojects are 100% complete and operational. The remaining subprojects to be completed are Security Command Center Expansion, and the Electronic Enhancements subproject which includes the Aircraft Detection System (ADS). In reference to the open subprojects, the Security Command Center Expansion subproject is ninety-three (93) percent complete and fully funded with the remaining activity contingent upon the demolition of the existing security system, scheduled for the end of the project. The Electronic Enhancements Subproject is eighty-eight (88) percent complete with ninety-five (95) percent of the hard construction activity completed. The remaining activities are primarily associated with the validation/cut over of operations from the old system to the new ARGUS system, and the procurement and installation

of the ADS. If no additional funds are provided, the site will be required to accept risk and higher operational costs, estimated to be a minimum of $1.5 million per year.

The shortfall has resulted from the need to support changed requirements and costs associated with LLNL.

- In January 1995, the DP Baseline Change Control Board approved BCP04, providing $2.5 million in support of the SNM Component Facility Backfit activity to reconfigure the vaults to "stage right", to be consistent with operations in Zone 4 and the upgrades in design to meet DOE Order 6430.1A non-reactor nuclear facility requirements.
- March 1996, the DP Baseline Change Control Board rejected the project's request for $2.5 million to address directed changes. The Board approved the required work be incorporated through the use of contingency funds. Electronic Enhancements project contingency was decremented $1.5 million to address changed Life Safety Code/Security requirements. Other subproject funds were decremented to address an increase in capability to store Strategic Reserve Pits.
- $5.0 million has been reallocated to cover software development cost overruns by LLNL. Several factors have contributed to these overruns. The system is "technologically advanced" and has resulted in a higher number of technical issues to be resolved than anticipated by LLNL, as part of the system development. Another contributing factor was the unavailability of a factory test bed large enough to prove functionality before being installed in the field at Pantex. This has resulted in a higher number of unforeseen software problems and configuration issues requiring LLNL resolution to meet security requirements and functionality.

In conclusion, the Security Enhancement Project has been conscientiously managed within the TEC funding level of $125 million. $9.0 million of $13.6 million in increased scope requirements and cost overruns have been absorbed within previously appropriated funds. It should be understood that the complexity of the Pantex environment provides a worst case test bed for this project as all modules are being implemented at this site. Successful implementation at the Pantex site should provide lessons learned in assuring a high probability of successful implementation at other sites.

3. Project Description, Justification and Scope

This project identifies subprojects required to enhance the Pantex security posture.

These subprojects reflect the best security enhancement from information and emphasis known to date. The scope and priority of each subproject is subject to subsequent revision to reflect the results of further vulnerability assessments, field exercises, and inspections and management direction. This is required to assure that the results of further threat scenario analysis are considered in the actual implementation of the subprojects. The project costs reflect this.

The Production Zone (Zone 12 South), the Special Nuclear Material (SNM) Isolation Area, the Staging Area (Zone 4 West), and the general site include projects which enhance Pantex physical protection, detection alarm assessment, SNM facilities, safeguards of SNM, access control, and security training.

Each subproject includes associated site work for drainage, roads, parking, and utilities. Also included are foundations, walls, roofs, doors, windows, water, sewer, HVAC mechanical equipment, fire protection, alarms, lights, and electrical power to make it functional and satisfy general facility design requirements.

a. Subproject 01 - SNM Component Staging Facility

TEC	Previous TEC from FY 1996 CPDS	FY 1998	FY 1999	FY 2000	FY 2001	Outyears	Construction Start-Completion Dates
$24,531 [b]	$22,300	$0	$0	$0	$0	$0	1st Qtr. FY 1991-2nd Qtr. FY 1998

This subproject is complete. Authorization for facility operation was issued July 1998.

b. Subproject 02 - Protected Area Enhancements

TEC	Previous TEC from FY 1996 CPDS	FY 1998	FY 1999	FY 2000	FY 2001	Outyears	Construction Start-Completion Dates
$ 2,834 [b]	$ 4,600	$0	$0	$0	$0	$0	3rd Qtr. FY 1990-2nd Qtr. FY 1991

This subproject is complete. Key Decision 4 was issued September 1992.

c. Subproject 03 - Electronic Enhancements

TEC	Previous TEC from FY 1996 CPDS	FY 1998	FY 1999	FY 2000	FY 2001	Outyears	Construction Start-Completion Dates
$81,183 [c]	$74,270	$0	$0	$3,500	$2,700	$0	4th Qtr. FY 1993-4th Qtr. FY 2000

This subproject is for the replacement and enhancement of electronic security systems at the Pantex Plant. This subproject includes a Closed-Circuit Television Surveillance System, an Aircraft Detection System, and a Compartmentation and Security Alarm System Upgrade. Major systems to be included are: the PIDAS in Zones 4 and 12, the Interior Security Alarm Systems (ISAS), the Compartmentation, and the Aircraft

[b] Current TEC reflects final subproject costs.

[c] Estimated cost at project completion.

Detection System (ADS). Other systems required to support the above include: Closed-Circuit Television (CCTV) systems, telecommunications, computerized processing systems, and operator interface consoles located in the Security Command Center (SCC); and the Alternate Command Post (ACP). The other subprojects, integrated into the above security systems, are Radio Communications equipment, and procurement and installation of PPIV, both integrated with Security Alarm System upgrades (Argus Access Control).

This subproject is to accomplish several tasks. Upgrading and enhancing the alarm systems include the responsibility to integrate as well as to modernize. Secured radio broadcasts will add to the security effectiveness at Pantex. Following are the detailed justifications:

- PIDAS: The existing PIDAS in Zones 4 and 12 have been in place for several years. Both systems have aged and are increasingly difficult to maintain. As a first line of defense against intruders into SNM areas and as a means of detecting insiders attempting to escape with stolen material, it is important for PIDAS to perform as well as possible.
- ISAS: The Interior Security Alarm Systems (ISAS) are also several years old and are of many incompatible varieties. The ISAS will be replaced with a single integrated system providing a composite risk reduction of 2-3 orders of magnitude, a single-man-machine interface, a single maintenance program and the reliability of a redundant system.
- ADS: The Aircraft Detection System (ADS) is required in order to detect the intrusion of rotary or fixed wing aircraft into the plant. The topographical features of the Pantex Plant include flat, treeless terrain with no tall buildings. Such terrain does not inhibit low flying or landing aircraft.
- Radio Communications: Construction of this activity was completed March 1998.
- Compartmentation: Compartmentation provides additional protection against the outsider and reduces the risk against the insider. To the outside, Compartmentation offers another obstacle and at the very least an additional delay because each work area becomes a vault which is in a locked condition. To the insider, Compartmentation is a deterrent that makes it harder to accomplish his goal. To security, Compartmentation increases the delay time for the outsider and reduces the number of potential insiders possible in a particular area. Compartmentation also raises the number of insiders needed to accomplish successfully their goal, thus making detection of the insider easier. Compartmentation is an effective method of reducing the risks associated with the insider threat by limiting the number of personnel with access to production work areas. Independent, as well as "in-house," security analysis initiated Compartmentation, based on assessments of targets, insider vulnerability, and procedural noncompliance.

d. Subproject 04 - Central Shipping and Receiving Facility

TEC	Previous TEC from FY 1996 CPDS	FY 1998	FY 1999	FY 2000	FY 2001	Outyears	Construction Start-Completion Dates
$ 5,865 [b]	$ 7,000	$0	$0	$0	$0	$0	3rd Qtr. FY 1992-4th Qtr. FY 1993

This subproject is complete. Key Decision 4 was issued December 1993.

e. Subproject 05 - Perimeter Lighting System

TEC	Previous TEC from FY 1996 CPDS	FY 1998	FY 1999	FY 2000	FY 2001	Outyears	Construction Start-Completion Dates
$265 [b]	$730	$0	$0	$0	$0	$0	3rd Qtr. FY 1994-4th Qtr. FY 1995

This subproject is complete. Key Decision 4 was issued January 1996.

f. Subproject 06 - Weapons Tactics and Training Facility

TEC	Previous TEC from FY 1996 CPDS	FY 1998	FY 1999	FY 2000	FY 2001	Outyears	Construction Start-Completion Dates
$ 5,290 [b]	$ 5,500	$0	$0	$0	$0	$0	4th Qtr. FY 1996-4th Qtr. FY 1997

This subproject is complete. Key Decision 4 was issued March 1998.

g. Subproject 07 - Physical Training Facility

TEC	Previous TEC from FY 1996 CPDS	FY 1998	FY 1999	FY 2000	FY 2001	Outyears	Construction Start-Completion Dates
$ 2,350 [b]	$ 2,500	$0	$0	$0	$0	$0	2nd Qtr. FY 1996-3rd Qtr. FY 1997

This subproject is complete. Key Decision 4 was issued August 1997.

[b] Current TEC reflects final subproject costs.

h. Subproject 08 - Alternate Command Posts

TEC	Previous TEC from FY 1996 CPDS	FY 1998	FY 1999	FY 2000	FY 2001	Outyears	Construction Start-Completion Dates
$ 2,550 [b]	$ 3,100	$0	$0	$0	$0	$0	3rd Qtr. FY 1994-4th Qtr. FY 1995

This subproject is complete. Key Decision 4 was issued October 1996.

i. Subproject 09 - Upgrade Staging Magazine Headwalls

TEC	Previous TEC from FY 1996 CPDS	FY 1998	FY 1999	FY 2000	FY 2001	Outyears	Construction Start-Completion Dates
$ 86 [b]	$ 280	$0	$0	$0	$0	$0	3rd Qtr. FY 1992-4th Qtr. FY 1992

This subproject is complete. Key Decision 4 was issued September 1992.

j. Subproject 10 - Isolation Area Fence Enhancement

TEC	Previous TEC from FY 1996 CPDS	FY 1998	FY 1999	FY 2000	FY 2001	Outyears	Construction Start-Completion Dates
$ 2,396 [b]	$ 1,750	$0	$0	$0	$0	$0	4th Qtr. FY 1994-1st Qtr. FY 1996

This subproject is complete. Key Decision 4 was issued June 1996.

[b] Current TEC reflects final subproject costs.

k. Subproject 11 - Protected Area Guard Towers

TEC	Previous TEC from FY 1996 CPDS	FY 1998	FY 1999	FY 2000	FY 2001	Outyears	Construction Start-Completion Dates
$ 1,946 [b]	$ 1,600	$0	$0	$0	$0	$0	4th Qtr. FY 1994-4th Qtr. FY 1995

This subproject is complete. Key Decision 4 was issued October 1996.

l. Subproject 12 - Security Command Center Expansion

TEC	Previous TEC from FY 1996 CPDS	FY 1998	FY 1999	FY 2000	FY 2001	Outyears	Construction Start-Completion Dates
$ 1,904 [c]	$ 1,370	$0	$0	$0	$0	$0	3rd Qtr. FY 1994-4th Qtr. FY 2000

This subproject will consist of two activities, facility expansion and facility renovation to the Security Command Center, Building 12-75, Computer Room.

Facility Expansion is complete. Key Decision 4 was issued October 1996.

Renovation of the existing computer room will be performed at the completion of the Pantex/Argus system cut-over.

Project Milestones

FY 1999: Electronic Enhancements subprojects:

Aircraft Detection System (ADS): Design and Procurement

Perimeter Intrusion Detection & Assessment System (PIDAS): Complete system Cut-Over.

Interior Security Alarm System (ISAS): Start System Cut-Over.

Compartmentation: Start System Cut-Over.

Positive Personnel Identification and Verification (PPIV): Start-up of booths located at Station A, B, 20, 26, 28, 30, 88 and Gate MW-20.

[b] Current TEC reflects final subproject costs.

[c] Estimated cost at project completion.

| FY 2000: Electronic Enhancements subprojects:

| Interior Security Alarm System (ISAS): Complete System Cut-Over

| Compartmentation: Complete System Cut-Over

| Aircraft Detection System (ADS): Start-up

4. Details of Cost Estimate

SUBPROJECTS	ED&I	CONST.	STD EQUIP	CONTINGENCY	TEC
a. SNM Component Staging Facility	4,196	19,504	710	121	24,531
b. Protected Area Enhancement	898	1,936	0	0	2,834
c. Electronic Enhancements	15,295	65,388	0	500	81,183
d. Central Shipping & Receiving Facility	812	4,680	373	0	5,865
e. Perimeter Lighting System	86	179	0	0	265
f. Weapons Tactics & Training Facility	730	4,560	0	0	5,290
g. Physical Training Facility	253	2,097	0	0	2,350
h. Alternate Command Post	223	2,327	0	0	2,550
i. Upgrade Staging Magazine Headwalls	7	79	0	0	86
j. Isolation Area Fence Enhancement	203	2,193	0	0	2,396
k. Protected Area Guard Towers (4 towers)	179	1,767	0	0	1,946
l. Command Center Expansion	258	1,643	0	3	1,904
Total Project Cost	23,140	106,353	1,083	624	131,200

5. Method of Performance

The design services (Studies, Title I, Title II, and partial Title III) will be accomplished by outside A-E firms and will be administered by the Department of Energy or the Operating Contractor (Mason & Hanger-Silas Mason Co., Inc.).

The construction services of this project will be performed by outside construction contractors operating under fixed-price, lump-sum contracts to be awarded on the basis of competitive bids. These contracts will be administered by DOE, and/or the Operating Contractor. The construction contractors will perform all work in accordance with the construction documents.

All equipment not specified to be procured and/or installed by the construction contractors will be procured and/or installed by the operating contractor (Mason & Hanger-Silas Mason Co., Inc.).

Construction Management Services will be performed by the DOE, Operating Contractor, and/or by a construction management firm under contract to DOE or the Operating Contractor.

Final connections for new security alarms, fire alarms and specific communications equipment will be accomplished by the Operating Contractor.

6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 1998	FY 1999	FY 2000	FY 2001	Outyears	Total
Total project cost							
Total facility Cost							
Design	21,864	600	249	412	15	0	23,140
Construction	84,869	5,968	7,230	6,588	3,405	0	108,060
Total facility costs (Federal and Non-Federal)	106,733	6,568	7,479	7,000	3,420	0	131,200
Other project costs							
R&D necessary to complete construction	172	0	0	0	0	0	172
Conceptual design cost	233	0	0	0	0	0	233
NEPA documentation costs	15	0	0	0	0	0	15
Other project-related costs	4,580	3,520	2,000	1,500	380	0	11,980
Total other project costs	5,000	3,520	2,000	1,500	380	0	12,400
Total Project Cost (TPC)	111,733	10,088	9,479	8,500	3,800	0	143,600

7. Related Annual Funding Requirements

(FY 2000 dollars in thousands)

	Current Estimate	Previous Estimate
Related annual costs (estimated life of project--25 years)		
Facility operating costs	1,000	1,000
Programmatic operating expenses directly related to the facility	1,000	1,000
Total related annual funding (operating from FY 2000 through FY 2024)	2,000	2,000